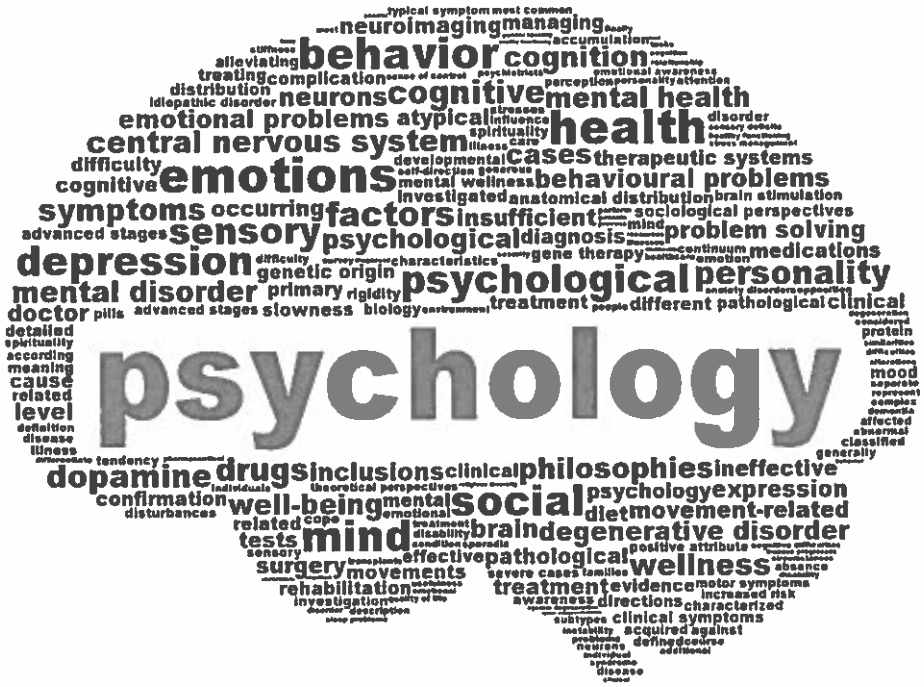

AP Psychology

Detailed Course Outline

(A "Crash Course" in Psychology)

2016-2017 School Year

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Spalding High School

Students,

This course outline takes a detailed look at the AP Course Description provided by college board. While it is in no way meant to replace a textbook, it does have a vast amount of information. This is designed to help you in preparation for a test, or the AP exam. As the AP exam approaches, textbooks can become too cumbersome as they have a lot of information, but if you need to cover a lot of ground quickly, this can be an issue. For re-learning material, this outline is the source you need. If you are pushed for time, and are taking the AP course, but are falling behind, this may be the life preserver you need to help stay afloat.

If you see anything in this that is wrong, or in desperate need of revision, please let me know so I can fix it for future Students.

Good Luck,

Chris Dunn
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Unit 1: History and Approaches

1. Introduction
    1. People have brains—the most complex thing known in the universe.
    2. People have minds—*non*-physical but undoubtedly real.
    3. People are naturally interested in other people and in what goes on in our minds.
2. Psychology's roots
    1. Buddha, Confucius, and Hebrew scholars philosophized on the mind in a broad sense.
    2. The ancient Greeks philosophized on the mind as well.
        1. Socrates and Plato used logic to decide that the mind is separate from the body and that knowledge is innate (born with us).
        2. Aristotle disagreed and said knowledge comes from observing experiences.
    3. Little happened through the Dark Ages until the Renaissance (1500s) that awakened people.
        1. In the 1600s, **Rene Descartes** agreed with Socrates' and Plato's ideas. He was interested in how the physical body and *non*-physical mind work together. Trying to figure out the body-mind connection, he dissected animals to view their brains and nerves.
        2. At the same time, **Francis Bacon** used the scientific method to conduct experiments. For this, he's known as a father of modern science.
        3. **John Locke** wrote that people are born with minds that are a "blank slate" (*tabula rasa*). Everything we know has been learned since then. This is the birth of modern "**empiricism**" – knowledge comes from experiences. Locke then agreed with Bacon: we must use experiments.
    4. The birth of the modern science of psychology
        1. **Wilhelm Wundt** created the first psychology lab in Germany in 1879. In the "first" psych experiment, Wundt measured the time it took people to hit a switch as soon as they heard and perceived a sound.
        2. Psychology soon branched into early approaches or schools of thought…
            1. Structuralism - below.
            2. Functionalism - below.
            3. Behaviorism - below.
            4. Gestalt psychology - the whole is greater than the individual parts.
            5. Psychoanalysis - Freud's idea that childhood and the unconscious drives a person's behavior.
        3. **Structuralism**
            1. Wundt's student **Edward Bradford Titchener** was the first structuralist.
            2. Structuralism is interested in the structure of the mind.
            3. To figure out the structure, Titchener encouraged introspection (looking inward).
                1. His subjects looked at items, like a rose, (or listened or smelled something) then reported sensations, feelings, etc.
                2. Introspection had problems: (1) it was unreliable, (2) people often don't know what or why they feel what they feel.
                3. In essence, introspection was wishy-washy. We need something *objective* (measurement using numbers) and not *subjective* (people's feelings). Introspection and structuralism began to fizzle out.
        4. **Functionalism**
            1. **William James** started functionalism.
            2. Functionalism was interested in the functions of things – the function of the nose, the brain, etc.
                1. James was influenced by Charles Darwin's evolution theory. James thought the nose adapted itself to smell because that helped us survive.
                2. James actual ideas were also a bit wishy-washy, like the structuralists.
            3. James' greatest achievement was likely the psych lab that he set up.
            4. James allowed a woman, **Mary Calkins**, to enter the Harvard grad school.
                1. A woman in the school was a social shocker. Harvard would not grant her the Ph.D. she'd earned.
                2. She went on to study memory and become the first female president of the APA (American Psychological Association).
                3. **Margaret Floy Washburn** earned the first Ph.D. for a woman and was the 2nd female APA president. Because of her gender, she was not allowed to the join the organization of experimental psychologists.
3. Psychological science develops
    1. Since the 1920s, psychology has organized itself into different approaches.
    2. **Psychology** could broadly be defined as the scientific and systematic study of people's behavior and mental processes.
        1. "Scientific and systematic" refers to the scientific method (experiments) and to a logical, orderly way to gather and analyze information.
        2. "Behavior" refers to something observable, like laughing or fidgeting one's hands.

3. "Mental processes" refers to the biology of thinking, analysis, judgments, and to the subjective (internal things like feelings, perceptions, beliefs).

4. Psychology's biggest question
    1. The **nature-nurture issue** is likely psych's biggest question. It asks, "Which influences a person the most, their heredity and biology (nature) or their upbringing and surroundings (nurture)?"
        1. This is like Socrates & Plato (innate knowledge) vs. Aristotle & Locke (*tabula rasa*).
    2. **Charles Darwin** believed in a mix of innate and *tabula rasa*.
        1. After viewing variations amongst species, Darwin developed the theory of evolution - from chance genetic mutations, he theorized that nature selects those traits that best allow a species to reproduce and survive.
        2. Darwin would see the nature-nurture mix in things like a polar bear's white coat (nature) or a girl's flirty ways to get a boy's attention (nurture).
    3. The answer to the question is, of course, both. Nature gives us what we've got, but we have the power and ability to nurture things from there.

5. Psychology's three main levels of analysis
    1. Today there's what's known as the **biopsychosocial approach** to understanding behavior. The idea is that all three components influence behavior and thinking. The approach encompasses (1) biological, (2) psychological, and (3) socio-cultural influences.
    2. From the biopsychosocial approach we get the **major approaches of psychology.** Below are the modern approaches of psychology (AKA "perspectives" or "schools" of psych), major people, and the general idea for each.
        1. **Biological** – Olds, Sperry – The body and brain are the dominant influences of behavior and thinking.
        2. **Evolutionary** – Darwin – Nature selects traits that allow a species to survive.
        3. **Psychodynamic** – Freud – The unconscious drives peoples' behavior.
        4. **Behavioral** – Watson, Skinner – Behavior is due to reinforcement, like rewards and punishment.
        5. **Cognitive** – Piaget, Chomsky – Focuses on how we store, process, and use information, like a computer.
        6. **Humanistic** – Rogers, Maslow – Environmental influences, especially love and acceptance, determine if we become all we can in life.
        7. **Socio-cultural** – no one person – Behavior and ideas are different depending on the culture.

6. Psychology subfields
    1. Psychology is broader and perhaps more difficult to pin down than other sciences, like physics or biology.
    2. There are many, many branches of psychology and types of psychologists, including…
        1. Psychometrics – the study of our abilities, attitudes, and traits.
        2. Biological psychologists – studying the link between the brain and mind.
        3. Developmental psychologists – who study our changes from birth to death.
        4. Educational psychologists – who study teaching and learning.
        5. Personality psychologists – who study our traits.
        6. Social psychologists – who study how we interact in groups.
        7. Industrial-organizational psychologists – who advise businesses on how to improve workers and increase efficiency.
        8. Counseling psychologists – help people deal with issues in their lives.
        9. Clinical psychologists – treat disorders.
        10. **Psychiatrists** are a bit different. They are *medical* doctors (M.D.s) and thus can prescribe medicine to treat biological disorders.
    3. Psychologists, or people with psychological training, work in a very wide range of professions. Psychology goes far beyond just the stereotype of a "shrink" talking to a looney-tune on a couch.

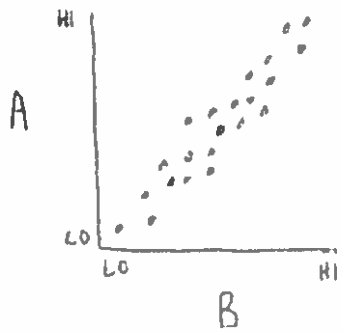
Unit 2: Research Methods

1. Introduction
    1. People turn to psychology in many ways and for many different reasons. The trick, though, is to distinguish fact from opinion.
    2. Many people and world leaders believe in their instincts and go by their "gut feeling".
    3. Many times our instincts are wrong, however. People tend to repeatedly over-estimate their ability to go by gut feelings.
2. Did we know it all along? Hindsight bias
    1. People often have **hindsight bias** – looking back in time makes an event seem as though it were inevitable to happen. This is like saying, "I knew it all along," or, "Hindsight is 20-20."
        1. *After* something happens, it just seems so obvious. What's more, people tend to believe that they actually saw it coming.
    2. Hindsight bias seems to be common sense. But, it goes both ways. People can have "common sense" in opposite or conflicting directions. Thus, there's a problem.
    3. Psychological studies often oppose "common sense" and our body determines much about what we do and feel.
3. Overconfidence
    1. People are often overconfident. **Overconfidence** occurs when we are more confident that we know something than we are correct.
        1. An example study had people unscramble jumbled words. Once they saw the word unscrambled, hindsight bias made them think they knew it all along and that the task was easy.
        2. People predicted they'd unscramble the word in a few seconds. *In actuality*, it was minutes—overconfidence.
4. The scientific attitude
    1. The main principle of science is to let the facts speak for themselves. There are 3 underlying parts to science…
        1. Curiosity – you need to really want to find the truth.
        2. Skepticism – scientists don't take people merely at their claims, scientists seek factual proof.
        3. Humility – a scientist has to be able to admit when he or she is proven wrong by the facts.
5. Critical thinking
    1. Scientists always ask questions, the top questions being, "What evidence do you have to support that?" or "Are there any possible alternative explanations?"
6. The scientific method
    1. The basic steps of the **scientific method** are:cfyigf
        1. Hypothesis – a statement predicts the outcome.
        2. Procedure – decide on a research method and a procedure to carry it out.
        3. Observation – recording the results by letting the results speak for themselves.
        4. Conclusion – measuring the observed results against the hypothesis' prediction.
        5. Report findings – by reporting results to others, they can replicate the experiment if desired.
    2. A **theory** is an explanation that organizes observations and tries to predict outcomes.
    3. A **hypothesis** is a prediction that can be tested.
        1. Experimenter bias can be a problem when testing a hypothesis. If not careful, they can see what they expect to see.
    4. To cut down on bias, an **operational definition** is formed. An operational definition has two parts: (1) a precise statement of the experimenter's procedures and concepts and (2) something that is measured numerically.
        1. We need numbers because otherwise there's no way to be sure about things. This is the subjective vs. objective problem.
            1. **Subjectivity** is a judgment based on or including a person's opinion or emotions – "A rose is a beautiful symbol of love."
            2. **Objectivity** is a judgment that has had opinion or emotion stripped away from it. – "A rose is a plant, normally 6 to 24 inches tall. It often has a thorny stem, serrated leaves, and a large-petal flower that issues a scent."
            3. Suppose someone was to say, "Person A is happier than person B, I can just tell" (subjective statement). But it's better to say, "Person A smiled 5.8 times more per hour than person B and, according to our definition that smiling is a sign of happiness, person A is therefore happier than B."
        2. A good operational definition should be detailed enough to enable other scientists to replicate the experiment if they wished. This way, other scientists can replicate the experiment and either support the hypothesis or debunk it.
    5. The 3 main types of **methods of research** used by psychologists are:
        1. Description
            1. Case study
                1. A **case study** is a thorough study of one person in hopes of learning about people in general. Think of a manila folder stuffed with everything about a person – letters written, photos, researcher's notes, interviews, 3rd grade test scores, etc.

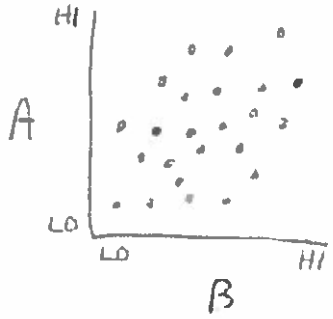
2. A problem with case studies is that of numbers – studying only *one* person then applying the results to *all* people is risky. The person may not exemplify all people.
3. Case studies can lead psychologists to other, more reliable, types of studies.

2. Survey
    1. A **survey** asks questions and deals with many more people (cases), but in much less depth.
    2. Surveys can easily gather info from a large number of people. They can easily **quantify** data (turn something into numbers) whereas a case study may have trouble doing this. This is critical to meet the operational definition.
    3. Surveys often have problems…
        1. **Wording** – the results of the survey can be dramatically different depending on the wording of the survey and/or the question order. Here, the survey itself is changing its own results.
        2. **Random sampling** – surveys must be from a **representative sample** of whatever group they're trying to represent. To get a representative sample (where the small group truly represents the whole group), the survey-takers must come from a random sample. A random sample is where every person in the group has the same chance of being selected for the survey.
            1. Getting a random sample, is trickier than it sounds, but there are two main ways to do it: (1) the bigger the number in the original group of people the better, and (2) use a computer or machine to do the picking.
            2. Non-examples: standing on the corner asking people to do the survey is not random (some people won't walk by), giving everyone a questionnaire is not random (some will/won't return it).
            3. A representative sample can be very accurate at predicting the entire population. A non-representative sample can be very wrong. So, how to tell if we have a representative sample? Random sampling!
3. Naturalistic observation
    1. A **naturalistic observation** is watching a person or animal behave in its normal surroundings. Think of a person squatting in a jungle taking notes on gorillas.
    2. The idea is to be as little intrusive as possible so the subject will behave normally, then record only what is observed. The explanation, the why? must come from another source.

2. **Correlation**
    1. When two things are related or they go together, they are said to correlate.
    2. Statisticians use a **correlational coefficient** to measure how closely two things go together (or not). This coefficient is usually seen in two ways:
        1. Numerically – The correlation coefficient is on a scale from 1.0 down to -1.0
            1. A coefficient of say 0.95 is very high (it's close to 1.0) and would look like the bottom-left to top-right graph.
            2. A coefficient of say -0.87 is very high as an inverse relationship (it's close to -1.0) and would look like the top-left to bottom-right graph.
            3. A coefficient of 0 is exactly no correlation at all (random pattern of dots).
        2. In **scatterplots** – Graphs with the two things on the X and Y axes and dots scattered throughout the graph.
            1. The tighter the dots line up from bottom-left to top-right, the higher the two things have a positive correlation. Like this:

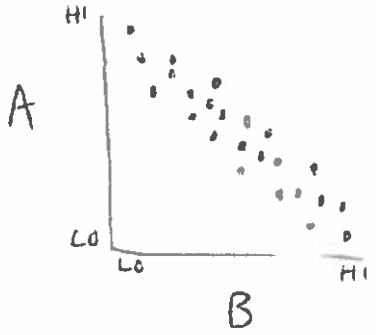


2. In real life, things usually don't correlate that highly. The dots may line up much more generally. Like this scatterplot that would have a correlation of

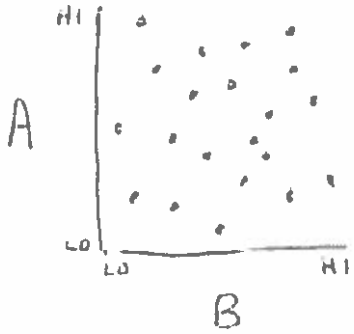


about 0.6 or so:

3. If the dots line up the other way (top-left to bottom-right), they have a high *inverse correlation* or *negative correlation*. Be aware, just because it's *negative*, it's still a high correlation if it's close to -1.0. Like this:



4. If the dots are splotched everywhere in no pattern, there is a very low correlation or none at all. Like this:



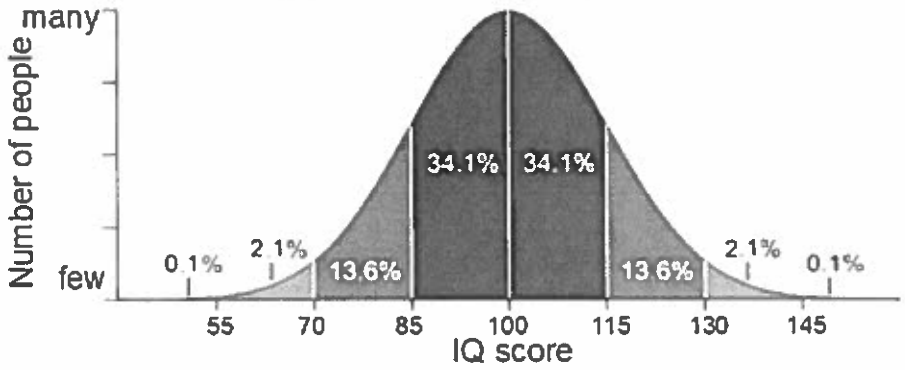
3. Correlation and causation
    1. Correlations have a trap – suppose A and B correlate very highly. Just because the two things correlate, it's incorrect to say A *causes* B. A *might* cause B, but we can't prove that just from a correlation. There might be a third or fourth factor involved that is the cause.
    2. Traps like these are reported all the time. For example, you may hear a report that says, "People who eat French fries at least twice a week are 3 times more likely to become obese." It's tempting to say, "Eating fries causes obesity," but, it's incorrect to say that. It's correct to say, "Eating fries 3 times a week and obesity have a positive correlation" (the two go together).
    3. Only an experiment shows causation because it isolates one variable to be tested.
    4. An example: a person's shoe size and their vocabulary correlate very highly – the larger the shoe size, the greater number of words the person knows. Why is this? Does a larger foot *cause* a person to know more words? Of course not, there is another factor involved – age or time.
4. Illusory correlations

1. People often see correlations that are *not* there. If two things happen that seem out-of-the-ordinary, we link them together. Such as an astrology prediction that seems to come true. However, we ignore them when they don't pan out.
2. The result is that we remember the times things work and forget the times they don't. Then we wrongly conclude they actually correlate.

3. Experimentation
    1. The gold-standard research method is the experiment. All of the other methods have their pluses, but experiments alone show cause-and-effect.
    2. Parts of a good experiment…
        1. **Random selection** – The participants come from a large population and are randomly selected to be involved.
        2. **Random assignment** – Once chosen to be in the study, participants are randomly assigned to either the control or experimental group.
        3. **Double-blind procedure** – A technique where the participants *and* researchers don't know which group they're in and/or the hypothesis being tested. Having participants and researchers "blind" is to cut down on any bias.
            1. **Placebo effect** – People are often given a placebo (a fake drug that's just a sugar pill) in double-blind experiments. Though fake, they *think* it's real and have real positive benefits.
        4. **Independent variable ("IV")** – The IV is what the experimenter manipulates. This is the *only* thing different between the experimental and control groups.
        5. **Dependent variable ("DV")** – The DV is what the IV supposedly affects. The DV is what is measured.
        6. **Confounding variables** – These are other factors that might make the experiment go wrong. Specifically, these are factors that might affect the DV. We want an experiment where only the IV affects the DV. Otherwise, we don't know what caused the effect. Our results are said to be "confounded".
            1. Random selection, random assignment, and good procedures filter out confounding variables.
    3. A simple example experiment…
        1. Suppose a student wants to measure reaction time differences between students chewing sugar-free gum and chewing gum with sugar. From a list of every student in her school, the experimenter has a computer generate a list of 50 people. They all agree to be in the study. A coin flip determines if they will be in the sugar-free or sugar group. They're not told which group they're in. With their hand flat on a table, the students chew gum, then when a light comes on, they smack a switch. The reaction time is measured.
        2. The parts of this experiment would be…
            1. Random selection – The experimenters started with a large list and had a computer randomly generate 50 names. To be even better, the experimenters would use an even *larger* list, say of every student in the county.
            2. Random assignment – The coin flip is random assignment, this will cancel out confounding variables.
            3. IV – Type of gum, sugar or sugar-free (this is what's different between the groups, it's what the experimenters manipulated).
            4. DV – The reaction time (this is what is measured; it's what the type of gum supposedly affects).
            5. Summary and strengths/weaknesses of methods of research (see chart at the bottom of this page).

7. Describing data
    1. When reviewing data, it's important to look at things carefully and critically. Things like the scale of graphs can influence how they're perceived.
    2. Measures of central tendency – **Central tendency** refers to the center of a bunch of numbers. There are three usual measurements of central tendency:
        1. **Mode** – The number which occurs most frequently.
        2. **Mean** – The average.
        3. **Median** – The middle number, once they've all been listed from lowest to highest. This is also the 50th percentile (50% are lower and 50% are higher).
    3. Measures of variation
        1. **Range** – Is the distance between the lowest and highest numbers in a group.
        2. **Standard deviation** – A measurement of how much the numbers vary from the mean (average). Just realize that if the numbers are all pretty close, the standard deviation will be low. If the numbers have a wide range, the standard deviation will be high.

3. **Normal curve** – Also called a "bell curve", is a graph that often occurs in nature with things like height and intelligence scores on tests. Look at this graph of IQ scores.



We see the median IQ is 100 (also the 50th percentile is 100). The break-point scores are the standard deviations. So, at -1 standard deviation a person scored at 85. Notice the percentages. 68.2% of people score within 1 standard deviation (between 85 and 115). And almost 96% score within 2 standard deviations (between 70 and 130). These percentages are amazingly stable in nature.

4. Making inferences
    1. This will be covered later (Unit 11: Testing and Individual Differences), but it should be mentioned here. There are two pillars of measurement:
        1. **Validity** – A test or bit of research measures what it's supposed to measure. If you took a test called "The Geography Assessment" but the questions were all algebra word problems, your score wouldn't reflect your geography knowledge at all. The test would not be valid.
        2. **Reliability** – The test yields the same results over and over. If you took a "U.S. Literature" test and scored a 97. Then took the "U.S. Literature" test twice more and scored a 57 and a 83, you'd say the results are not very reliable. But if you scored a 97, then a 94, then a 95, the test would be pretty reliable. Ways to make tests as reliable as possible:
            1. Representative sampling – This is done with random selection of participants.
            2. Low variability – Results with low ranges and low standard deviations are more reliable than high ones.
            3. More is better – The more numbers we have, the better the results.
    2. **Statistical significance** – The observed difference between two numbers is not due to chance. Usually statistical significance is measured by a "p-value" and goes by the 5% rule. A p-value is normally shown like 0.04 (or 4%), for example. Scientists will say the numbers are statistically *significant* if there is less than a 5% chance that they were caused by chance (in other words, the p-value is 0.05 or lower). For example, in an experiment, we're at least 95% certain that the Dependent Variable's numbers were caused by Independent Variable.
5. Psychology applied
    1. Research in a laboratory can test principles that can be applied to everyday life.
    2. Culture comes into play during research.
        1. Due to cultural differences, a study in one culture may or may not be able to be applied to another culture.
        2. In some ways, humanity is united in certain ways across cultures. For instance, smiles and frowns are universal.
    3. Gender differences, and similarities, are real as well.
6. Ethics in research
    1. Scientists often study animals for many reasons such as…
        1. Their biological systems are often simplified versions of humans'.
        2. Their life-cycles are often short so it's faster to study life spans and generations.
        3. It's not ethical or moral to do certain things to humans.
    2. Animal research
        1. Using animals in research is sometimes controversial. The arguments center on the morality of using animals to hopefully better humankind (and animalkind).
        2. Over time, we've developed an unofficial ranking of animals: (1) humans, (2) primates and household pets, (3) mammals, (4) birds, fish, reptiles, (5) insects.
    3. Human research
        1. When using humans in research there are ethical stop-signs. It would be wrong to electrically shock people in a study. But would it be okay to *fake* a shock? To put people through stress? (The general consent is, "No, that's not ethical").
        2. The **APA** (American Psychological Association) suggest two things:
            1. **Informed consent** – This means participants (1) know what's going on and (2) they give their permission to be in the study.

2. **Debriefing** of participants – When the study's finished, researchers and participants go back over the whole thing.

3. Values still work their way into studies. For instance, our values impact the decision of *what* to study (and what not to study). And values affect the way we word things, like asking if you think a person is "cheap" (negative connotation) or "penny-wise" (positive connotation).

Type of Research	Purpose	Strengths	Weaknesses
Case study	To gather information.	Inexpensive. Requires only one participant. Can often be done when ethical factors won't allow experiments.	Individual cases can be misleading. Doesn't show causation.
Survey	To gather information.	Inexpensive. Can gather lots of info fast. Can often be done when ethical factors won't allow experiments.	Wording and personal bias can severely alter results. Doesn't show causation.
Naturalistic observation	To gather information.	Inexpensive. Can often be done when ethical factors won't allow experiments.	Individual cases can be misleading. Doesn't show causation.
Correlation	To find out if two things go together, if they co-relate.	Can handle large numbers of people/data. Can often be done when ethical factors won't allow experiments.	Doesn't show causation.
Experiment	To find cause-and-effect.	Shows cause-and-effect.	More costly. Ethical factors may make experiments impractical.

Unit 3: Biological Basis of Behavior

3A: Neural Processing and Endocrine System

1. Introduction
    1. You cannot totally separate the mind from the body.
    2. **Biological psychologists** study the linkage and interplay between the body and the mind.
    3. Even more broadly, there is a **biopsychosocial** component. This concept believes we do the things we do because of (1) our bodies, (2) our minds or thinking, and (3) the culture that we live in.
2. Neurons
    1. **Neurons** are nerve cells. There are a few types to know…
        1. **Sensory neurons** – Take messages from the body, up the spinal cord, to the brain. There are millions of these.
        2. **Motor neurons** – Take messages from the brain to the body. There are millions of these.
        3. **Interneurons** – Are neurons within the brain that "talk" to one another while thinking or processing information. There are billions and billions of these.
    2. Parts of a neuron
        1. **Cell body** with a nucleus in the middle.
        2. **Dendrites** are feather-like fingers sticking out from the cell body. They bring info in to the cell.
        3. **Axons** are long "arms" that send info away from the cell body to other neurons or body parts.
            1. Axons are insulated by the **myelin sheath**. This insulation helps control the impulses and speeds their travel.
            2. Messages travel along neurons at between 2 and 200 mph (depending on the type of neuron). This may seem fast, but is very slow compared to computers.
        4. Neurons "fire" when stimulated by a sense or other chemicals from another neuron. When it fires, it's called the **action potential**. This is a slight electrical charge.
            1. A chemical reaction generates the electricity, like with a battery.
            2. This is an all-or-nothing event, the neuron either fires or it doesn't fire.
            3. Axons have negatively charged ions *inside*, positively charged ions *outside*. There is a *selectively permeable* membrane in between (it selects what to let in/out).
            4. When firing, a neuron allows the positive ions in. For a moment called the *refractory period*, it can't fire, until it pushes the positive ions back out and "resets" itself.
            5. Neurons get mixed signals. *Excitatory* signals tell it to fire. *Inhibitory* signals tell it to not fire. When the excitatory signals outweigh the inhibitory signals by a certain amount, the neuron fires. This is called the **threshold**.
3. How neurons communicate
    1. A **synapse** is the place where the axon of one neuron meets the dendrites of another. There is a very slight gap in between (the "synaptic gap").
    2. **Neurotransmitters** are chemical messengers that take the impulse of one neuron across the synaptic gap to another neuron.
        1. During what's called reuptake, the extra neurotransmitters return to the original neuron and are ready again.
4. How neurotransmitters influence us
    1. Neurotransmitters affect people in many ways such as: depression, happiness, hunger, thinking, addictions, and therapy.
    2. An example is acetylcholine (ACh). ACh tells muscles to contract. When it's blocked (as in some anesthetics), the muscles won't contract and we're paralyzed.
    3. Another example is **endorphins**. These are like natural morphine that our bodies produce. They improve our moods and reduce pain. They're released either in times of pain or heavy exercise.
        1. When a person uses drugs like cocaine, heroine, or morphine, the body will produce less endorphins of its own.
        2. Drugs that act like neurotransmitters and bridge the synaptic gap are called *agonist molecules*. Opiate drugs produce a "high". Black widow spider poison produces muscle spasms.
        3. Whereas agonists *connect* the synaptic gap, *antagonists* block transmission. For example, Botox blocks a muscle from contracting.
5. The peripheral nervous system
    1. People are said to have two nervous systems:
        1. The **central nervous system** consists of the brain and spinal cord.
        2. The **peripheral nervous system** consists of our sensory receptors, muscles, and glands.
    2. The peripheral nervous system has two parts:
        1. The **somatic nervous system** can be voluntarily controlled, like moving your legs.
        2. The **autonomic nervous system** runs on its own, like your heartbeat. The autonomic nervous system also has two parts:

1. The **sympathetic nervous system** which activates and exerts energy – like preparing to run away or to fight. Specifically, it increases your heartbeat, blood pressure, blood sugar, and slows digestion. It gets you ready for action.
2. The **parasympathetic nervous system** kicks in when the "crisis" is over – it calms you down by doing the opposite things. It helps you chill out.

6. The central nervous system
    1. Our bodies are amazing, but without the brain, we're like robots. The brain is what makes us human. 400 trillion synapses "talk to one another" in our brains.
    2. Neurons group themselves together into *neural networks*. This helps them communicate even faster.
    3. The **spinal cord** connects the brain with the peripheral nervous system. Reflexes are a good example of sensory information going to the brain and motor information going from the brain to a muscle.
        1. A single sensory neuron and a motor neuron working together form an *interneuron*.
        2. A person whose spinal cord is cut and is paralyzed still has the knee-jerk reaction. The brain is not involved with an interneuron.
7. The endocrine system
    1. The endocrine system secretes **hormones** which impact interest in sex, food, and aggression.
    2. Like neurotransmitters, some hormones have molecules that act on receptors in the body. Hormones move slower than neurotransmitters, but last longer.
        1. For example, suppose you think you're about to get into a fight. The **adrenal glands** secrete epinephrine (AKA adrenaline). It increases the pulse, blood pressure, and blood sugar.
        2. After the crisis is over, it takes a while to calm down and return back to normal.
    3. The **pituitary gland** is the most influential. The pituitary is controlled by the hypothalamus part of the brain. The pituitary's hormones influence growth and secretions by other glands (it's the "master gland"). These hormones, in turn, then influence the brain.
        1. The chain-reaction could be represented as: Brain->Pituitary->Other glands->Hormones->Brain

3B: The Brain

1. Introduction
    1. There's little doubt that what makes you yourself and me myself resides in our brains.
    2. The mind is somehow a combination of body plus brain.
2. The tools of discovery: having our head examined
    1. Early on, there were no tools to "map" the brain. Damages to the brain and resulting symptoms enabled researchers to build a rough "brain map".
    2. Today, we have several techniques to measure brain activity.
        1. Areas of animals brains can be destroyed and the results analyzed. Or, brain areas can be stimulated and the results analyzed.
        2. An **EEG (electroencephalogram)** is a read-out of electrical brain activity.
        3. A **PET scan (positron emission topography)** shows the brain's "hot-spots" of action by measuring its consumption of sugar glucose, the brain's fuel.
        4. An **MRI (magnetic resonance imaging)** provides a picture of the brain's soft tissue. MRI's have shown brain differences in things such as people who have perfect pitch or schizophrenia.
        5. An **fMRI (functional MRI)** can show the brain's structure *and* function. An fMRI measures blood-flow to and within the brain and therefore can show brain activity.
3. Older brain structures
    1. Brain size-to-body weight ratio is important to an animal's intelligence, but it isn't the *only* factor of intelligence.
    2. Simple animals, like sharks, have brains that are concerned with survival—breathing, resting, eating. In mammals and especially in humans, higher order brain functions emerge, like emotion and memory.
        1. Thus, we have two brain functions: "old brain functions" dealing with survival and more complex brain functions dealing with thought.
    3. The **brainstem** is the oldest brain region.
        1. The brainstem begins as the spinal cord enters the brain it swells in width. This section is called the medulla. The **medulla** controls heartbeat and breathing.
        2. Above the medulla is the **pons**. It helps to coordinate movements.
        3. The **reticular formation** is inside the brainstem. It looks a bit like folded fingers and relays incoming stimuli to other areas of the brain (also regulates autonomic functions, such as arousal.)
    4. Atop the brainstem is the **thalamus**. It's the hub that sends incoming sensory impulses (except for smell) to the higher brain areas.
    5. The **cerebellum** is at the back of the brain. It's baseball size, is split into two parts, is wrinkled in appearance, and means "little brain" which is what it looks like.
        1. The cerebellum coordinates movement, manages emotions, and figures out sounds and textures.
    6. The **limbic system** sits between the older brain structures and the cerebral hemispheres (the two large halves of the brain).
        1. The **hippocampus** is critical because it processes memory.

2. The **amygdala** is made up of two bean-size nerve bundles. The amygdale manages anger and fear. It also is involved with handling the emotions and memories involved here.
    1. It's important to note something here—we like to categorize things, such as A does B, and X does Y exclusively. The brain, however, is far more complex. Several parts of the brain handle things like emotions, memories, learning, movement, etc.
3. The **hypothalamus** ("hypo" meaning below) is below the thalamus. The hypothalamus is important in hunger, thirst, body temperature, and sexual behavior.
    1. As an example, thinking about sex in the cerebral cortex activates the hypothalamus. It emits hormones that affect the pituitary (the master gland) which affects other hormones to. These hormones influence brain activity. Remember the chain: Brain->Pituitary->Other glands->Hormones->Brain
    2. As another example, a chance discovery had two scientists implant an electrode in a rat's "reward" or "pleasure center" of the brain—the hypothalamus. This spawned experiments. Rats would similarly press a lever to give a reward to its brain, up to 7,000 times/hour, until it stopped from exhaustion.
        1. Later rats were essentially driven, remote controlled, to turn left or right by pleasure impulses to their hypothalamuses.
    3. Animal research shows a release of dopamine within pleasure areas of eating, drinking, and sex.
    4. People have shown mild, but not the same, frenzied results as the rats.

4. The cerebral cortex
    1. Whereas the older brain parts carry out survival functions and less voluntary things, the newer brain parts deal with more voluntary functions, like perception, thinking, and speaking. The **cerebral cortex** is the largest section of the brain, about 85% of its weight. It's the gnarled "bark" that encompasses the rest of the brain.
    2. Being wrinkly, the cerebral cortex looks like a giant walnut. It has about 20 to 23 billion nerve cells linked together by 300 trillion synapses.
        1. These nerve cells are supported by 9 times as many **glial cells**. These cells feed and insulate the nerve cells.
    3. The cerebral cortex is divided into four lobes, separated by fissures, and each with their own specialties…
        1. The **frontal lobe** is in the front, behind the forehead.
        2. The **parietal lobe** is at the top and to the back of the brain.
        3. The **occipital lobe** is at the back and bottom of the brain.
        4. And the **temporal lobe** is near the temples, on the side.
    4. The cerebral cortex has different functions centered on different areas.
        1. The **motor cortex** is a strip roughly between the frontal and parietal lobes. It handles our movements and motions by sending impulses from the brain to the body. Tests where electrical stimulation to this part of the brain would make animals or people move in various ways.
            1. The question then became, "Could a person or animal control a machine (like a computer mouse) using his brain?" The answer seems to be, "Yes." A monkey was "wired up" to control a mouse with only his motor cortex.
            2. Researchers are trying to use this technique with a paralyzed person who cannot speak. The idea is to "wire up" the cortex to a machine, the person thinks of the word, and the machine speaks for him.
            3. The FDA gave the okay for a "neural prosthetic" in 2004. With a computer chip implanted in his motor cortex, the man could control a TV, draw shapes on a computer, and play video games.
        2. Sensory functions
            1. The **sensory cortex** receives input from the senses to the brain (the opposite direction from the motor cortex). The sensory cortex is a strip just behind the motor cortex, at the front of the parietal lobe.
                1. The more sensitive the area of the body (like the sensitive lips), the larger that area of the sensory cortex.
            2. The **occipital lobe** processes vision. Being bonked in the back of the head can literally have you "see stars" or flashes because the lobe gets jarred.
            3. Sounds are processed in the auditory cortex in the temporal lobe (appropriately, just above the ear).
        3. The areas described thus far in the cerebral cortex make up only about ¼ of its size. The other ¾ of the cortex is harder to pin down and label, but seems that it's for thinking. It's generally called **association areas**. These areas piece parts together and make sense of things.
            1. For instance, seeing a stick of dynamite and a lit match side-by-side mean nothing until they're associated with one another. The logical conclusion – danger!
            2. The frontal lobe handles judgment, planning, and new memories.
                1. It also impacts personality. Phineas Gage was famously injured in a railroad accident in 1848 when a iron spike drove through his skull. It injured his frontal lobe. He was

largely okay, but his personality had changed completely from friendly and mild-mannered to profane, cranky, and dishonest.

3. The parietal lobe seems to handle math and spatial reasoning (Einstein's were large) as well as recognize faces.
4. Despite these hot spots, the brain's "map" really isn't written in stone and we should be careful to not think that it is.

4. The brain has a measure of **plasticity**, that is its ability to change itself after being damaged.
    1. Whereas something like skin can "grow back" or "heal over," neurons don't regenerate themselves. A severed spinal cord stays severed. But the brain seems able to reorganize or reassign jobs and functions.
    2. Children's brains are amazingly plastic.
    3. People seem to heal fastest when their "good hand is tied behind their back" and are forced to use their "bad hand." This forces the brain to reorganize.
    4. There are many examples…
        1. Blind people who read Braille have increased sensitivity in their fingertip.
        2. Deaf people's hearing area of the brain turns toward visual stimulation.
        3. A lost finger's area of the brain will take on the nearby fingers' sensation.
    5. Contrary to popular belief, we do grow new brain cells in a process called **neurogenesis**. Naturally, this is promoted by exercise, sleep, and non-stressful but stimulating environments.

5. Our divided brain
    1. We've known for over 100 years that the two sides of the brain have different purposes. Damage to the left hemisphere resulted in problems with reading, writing, speaking, math, and reasoning. Around 1960, it was discovered that the right hemisphere had its specialties as well.
    2. In 1961, patients with severe epileptic seizures had their **corpus callosum** cut. The corpus callosum links the two hemispheres. The seizures stopped and the patients were very normal afterwards.
        1. These patients were then subject to experiments. The patient stared at the center of a screen and words or images were sent displayed to each side and thus were sent to one half of their brain. For example…
        2. HE . ART was flashed while staring at the center dot. HE went to the right brain, ART to the left brain. When asked what he saw, he said "ART" (left brain talking). Then he pointed to HE with his left hand (right brain controlling).
    3. Left brain – right brain research can get very confusing with its criss-crossing nature, but the overall conclusions were…
        1. The left brain handles rational, logical thought, speech and words. Think of Mr. Left, a boring, methodical, math teacher who carefully works through complicated problems step-by-step and always gets the correct answer.
        2. The right brain handles images, emotions, intuition, and drawing inferences. Think of Mrs. Right, a flaky, unpredictable art teacher who can instantly tell when you're having a down day.
6. Right-left differences of the intact brain
    1. For nearly all people (those who *don't* have a severed corpus callosum) the hemispheres "talk" to one another instantly. Still, the halves have their specialties.
        1. A sedative to patients that goes to the left brain will leave the person's right arm limp and they can't speak.
        2. A sedative to patients that goes to the right brain will leave the person's left arm limp but they can still speak.
        3. Sign language is also dominated by the left hemisphere. One might think the right hemisphere would handle this (being more spatial and visual in nature), but not so. Language is language regardless of how it is conveyed.
        4. The right hemisphere handles our sense of self – who we are and how we look.
    2. 90% of people are right-handed. 96% of these folks process speech in the left hemisphere. But, only 70% of left-handers process speech in the left hemisphere.
        1. Left or right handedness seems to be genetic in some way.
        2. Left-handers have more reading disabilities, allergies, and migraines. But they seem better than righties at music, math, and art.
    3. These facts illustrate the overall theme of this chapter – biology influences everything psychological.

3C: Genetics, Evolutionary Psychology, and behavior

1. Introduction
    1. People are both very different in many ways and very similar in many ways.
    2. Some things seem universal to people, regardless of their race or culture – perceiving facial expressions, building relationships, conformity, formation of social rankings, grieving, celebrating, worshiping, and playing.
2. Genes: our codes for life
    1. Every cell in our bodies holds our master genetic code. This is in our **chromosomes** – a normal person has 46 chromosomes, 23 from our mother and 23 from our father.

2. Chromosomes hold our **genes** which holds our **DNA**, our genetic coding.
    1. Genes are either active or inactive, "expressed" or "repressed".
    2. People are remarkably similar genetically, regardless of race or ethnicity.
    3. Geneticists are interested in those few differences, however, that make us so different.

3. Twin and adoption studies
    1. Studying genetics of humans brings up many ethical questions. Experiments are really not an option. So, researchers turn to twins and adopted children.
    2. The question centers on the nature-vs.-nurture discussion – which is more powerful?
        1. Twins can have identical genes but might be raised in different environments. Any variations or similarities then would be influenced by genetics.
        2. Adopted children can have different genes but be raised in a very similar environment. Any variations or similarities then would be influenced by the environment.
    3. There are several groups we're interested in here…
        1. **Identical twins** which have identical DNA since they formed from a single **zygote** (fertilized egg). They have identical DNA and their environment is very similar – they have the same birthday, often share the same room, start school at the same time, experience things like moving to a new home at the same age, etc.
        2. Fraternal twins are simply siblings formed from two zygotes. Their genetics are not identical but are close since they're siblings, and like identical twins, their environment is very similar.
        3. **Siblings** who are simply brothers/sisters or both. Being siblings, they have close genetics. But, since they're normally at least one year apart in age, usually more, they have a slightly less common environment. Changes and experiences happen at different ages and thus may have differing influences.
        4. "**Virtual twins**" are non-related children of the same age, like step-brothers or step-sisters. Being non-related, genetics are no more similar than any two people. But being virtual twins, the environment is very similar.
    4. The research seems to show that genetics play the larger role in the nature-nurture battle. The more close the genes, the more close the people. The "ranking of similarity" then, from most to least similar, is…
        1. Identical twins raised together.
        2. Identical twins raised separately. There have been freakish similarities.
        3. Fraternal twins raised together.
        4. Siblings raised together.
        5. Siblings and fraternal twins raised separately.
        6. Virtual twins raised together.
    5. With the "power of genes" evident, what's the role of the environment? The research shows that the way a child is raised matters in a huge way.
        1. Genetics influence personality and physical attributes (but so does the environment, such as a junk-food family or a health-food family).
        2. The environment influences things like attitudes, beliefs, religion, politics, and manners.
        3. Adopted children thrive in their adopted homes.
            1. Adoptive parents are screened thoroughly. Thus, they're likely to be better educated parents and live more stable lives – good things for children.
            2. Adopted children often "do better" and score higher on IQ tests as compared to their biological siblings who stay with their biological parents.

4. Heritability
    1. **Heritability** is the mathematical likelihood that differences between people is due to genetics.
        1. This does not show the likelihood that the genes caused a certain trait.
        2. This shows the percent likelihood of *variations among people* based on genetics.
    2. Heritability depends on how alike or unlike two people's environments are.
        1. If two people grow up in an exactly similar environment, heritability is high. This is because any differences are likely due to genes.
        2. If two people grow up in very different environments, heritability is low. This is because any differences may very well be due to the environment rather than genes.
    3. It's likely inaccurate to apply an individual's heritability to groups of people as a whole.

5. Gene-environment interaction
    1. It's only fair to say that both genetics and the environment *interact* to create who we are. From the day we're born, our environment shapes us.

6. The new frontier: molecular genetics
    1. **Molecular genetics** tries to single out how specific genes influence the body or behavior. Examples might be genes that govern body weight or how outgoing a person is.
    2. To single out these genes, researchers start with families that have a trait that runs through generations, say alcoholism. They take blood samples or cheek swaps. Then they compare their genes with those of "normal" people and look for differences.
    3. Because we can "see into the future", ethical issues arise.
        1. Millions of female fetuses are aborted in China and India because males are more desired.

2. Fetuses might have a problem that shows up in their DNA. Many debate whether it would be okay to abort that pregnancy.
3. Some wonder, if parents don't like the child's genetic make-up, is it okay to abort the child and "try again"? What if the DNA shows a brown haired child and the parents wanted a blonde, okay then?

7. Natural selection and adaptation
    1. For all the mileage he got out of it, **Charles Darwin**'s 19th century **theory of evolution** is rather simple. The theory holds these beliefs…
        1. A species has variations.
        2. Those variations sometimes help it to live and/or to reproduce.
        3. If it lives and reproduces, its genes get passed on to the next generation (those that did not live and reproduce, will not get passed on).
    2. Some researches wondered how long it would take to domesticate a fox. After 30 generations of breeding the most tame fox-parents (forty years), the result was a loving and affectionate fox.
    3. The evolution theory believes that genetic **mutations**, <u>random chance changes</u>, sometimes help a species to survive and/or reproduce.
    4. The evolution theory believes that humans have both genetic changes as well as the ability to use our minds and change ourselves to our environments.
8. Evolutionary success helps explain similarities
    1. Regardless of face, humans are genetically at least 95% similar.
    2. People love to eat junk food – fatty and sweet food that makes us fat. In the old days, these treats were rare, but they staved off famines.
9. An evolutionary explanation of human sexuality
    1. Men and women are different, in case you hadn't noticed.
        1. Men are seen as seeking sex more often than women.
        2. Women are traditionally seen as viewing sex as a relationship (that they are in it for the long haul).
        3. An evolutionary psychologist would say, "A man wants to spread his genes as often as possible (have a lot of sex), but a woman wants a man that sticks around to help raise the kids."
    2. Men find women attractive who are young (20s), healthy-looking, athletically built, and smooth-skinned. These things add up to several child-bearing years ahead.
    3. Women are attracted to somewhat older men – those who are mature, dominant, confident, like a successful businessman.
10. Critiquing the evolutionary perspective
    1. Evolutionary psychology is often criticized as being somewhat narrow-minded. It perceives people as acting under one, and only one, impulse – the desire to survive and pass on genes.
    2. Many wonder, "As human beings, isn't there something more to us than this animalistic drive?"
11. Reflections on nature and nurture
    1. Simply put, both our genes and the environment in which we're raised both make us who we are.
    2. Our genes deal us our cards, the environment influences how we play those cards.

Unit 4: Sensation and Perception

1. Introduction
    1. Some people can see perfectly, but cannot recognize members of their family. This person has what's called prosopagnosia, AKA "face blindness." This illustrates the difference between sensation and perception.
        1. Sensation is the ability to see in this case, but includes hearing, touching, tasting, and smelling.
        2. Perception is how we put the impulses received from our senses together so they make sense. Although a person may see perfectly, they cannot perceive or correctly process the impulses so that they make sense.
    2. Sensation is part of bottom-up processing where our senses send information to our brain.
    3. Perception is part of top-down processing where our brain assembles the info to make sense of the impulses being sent to it.
2. Selective attention
    1. We sense *a lot* of information. Scientists estimate we observe 11,000,000 bits of info per *second*. But we weed out all but 40 bits.
    2. The ability to screen out sensory information and focus on only a small portion of it is called **selective attention**. Think of a housewife telling her husband the things that need to be done around the house while he's watching a football game on TV oblivious to what's she's saying. He's got selective attention.
        1. The **cocktail party effect** is a person's ability to single out one voice amidst many others, then to "change channels" to another voice. A person in a crowded, talking room can weed out other voices and converse with one person. Then the first person can single out another voice and "tune in" on that person if desired.
        2. Selective attention is seen in car crashes. People that talk or text on the phone are distracted by the phone and are much more likely to crash (4 times more in one study for talking, 23 times more for texting). More specifically than "being distracted", they selectively put their attention on one task at a time, driving or texting, and the other suffers.
        3. Despite people's claim of "multi-tasking", as humans, we focus on one thing at a time.
    3. On the flip side is **selective inattention** or **inattentional blindness**. This is the ability to purposefully block out all but one bit of sensory input - to focus on one thing only.
        1. This was seen in an experiment where a person in a gorilla suit walked among people passing a basketball. The observers were to count basketball passes so they focused on that task. Most people never saw the gorilla.
    4. Similarly, there is **change blindness** which is where people won't notice a change in "scenery" after a brief interruption.
        1. This was seen in a scene where person A was getting directions from a bystander, then was interrupted by construction workers, then was replaced with person B. The bystander doesn't notice the switch from person A to person B 40% of the time.
    5. In **choice blindness**, people are unaware of the choices or preferences they make.
        1. This was seen in an experiment where women were shown two pictures and asked to choose the most attractive person. Then they were tricked and shown the one they'd rejected and asked, "Why'd you choose this person as more attractive."
        2. Only 13% caught the switcheroo. They explained why they chose that person.
        3. When asked if they'd recognize a switcheroo, 84% said they'd catch a switch. This became known as **choice blindness blindness** – they can't see that they're choice blind.
    6. In **pop-out**, something is noticeably different from the others and thus, pops out to the viewer. Imagine a picture of a hundred white cats and one black dog. The black dog would pop out to you.
3. Thresholds
    1. We sense only a sliver of the info coming at us. We can't see everything (like X-rays or radio waves) or hear everything (the family dog can hear much more than us).
    2. Take sound for example, at some point there is a point where we can't hear a frequency (but the dog still can). This cut-off point to sensation is called the **absolute threshold**. It's defined as the minimum stimulation needed to detect light, a sound, a pressure, taste or odor 50% of the time.
        1. As an example, people lose the ability to hear high-pitched as they grow older.
        2. Teens use this to set "mosquito" ringtones that adults likely won't hear. Businesses use this to shoo away loitering teens.
        3. **Signal detection theory** is the idea that predicting whether or not we detect a stimulus depends not only on the stimulus, but also on our experience, expectations, motivation, and alertness.
            1. People in life-or-death situations, like war, often have heightened signal detection.
    3. **Subliminal stimulation** (kin to "subliminal perception") is stimulation just below our level of consciousness. This occurs when we're subjected to a stimulus, but we just aren't aware of it. For instance, an image might be flashed so quickly we don't even know we saw it.
        1. Can we sense these things? By definition, yes, because absolute threshold is 50% of the time. Thus, we might sense this 49% of the time.
        2. Can these unconscious stimuli impact our behavior? We're not sure the answer to this question just yet.

1. In one study, subliminal stimuli can **prime** or prepare responses. This means a subliminal stimulus prepared people for a response to a second stimulus.

4. A **difference threshold** or **just noticeable difference (JND)** is the minimum difference between two stimuli that can be detected at least 50% of the time.
    1. For example, imagine picking up a 20 pound weight and then a 20 pound 1 ounce weight, you likely would not notice a difference. If you kept increasing the weight, you'd eventually say, "This is heavier." At some weight, you'd notice it 50% of the time, that's the JND.
    2. **Weber's Law** says the difference between two stimuli must differ by a constant *proportion*, not necessarily a constant *amount*.
        1. Think about weight, weight must differ by 2% for a person to notice the difference.
        2. Think about sound, two tones must differ by 0.3% for a person to notice the difference.

4. Sensory adaptation
    1. **Sensory adaptation** is a person's diminishing sensitivity to a sensory stimulus. In other words, if a stimulus persists, you get used to it.
        1. Think of a person spilling a bit of perfume in class. You smell it strongly at first, but by the end of the class, you don't really notice it. As soon as the next class walks in, students say, "What's that smell?"
        2. This also works for vision. Normally our eyes scan everything to "take it all in". If you were forced to look at the same thing over and over, you'd eventually stop seeing it.
5. The stimulus input: light energy
    1. The process where our eyes sense light energy and change it into neural messages that our brain can handle is called **transduction**.
    2. Visual light makes up a very small portion of the electromagnetic spectrum. But, that's the part that we see.
    3. Visible light has two important characteristics…
        1. **Frequency** – Frequency refers to the wavelength of the light wave, or like waves on the beach, how frequently they hit. Think of "FM" (frequency modulation) on the radio where a radio wave's wavelength is changed.
        2. **Amplitude** – Amplitude refers to the intensity of the light wave, or like waves on the beach, how strongly they hit. Think of "AM" (amplitude modulation) on the radio where a radio wave's amplitude is changed.
6. The stimulus input: light energy
    1. **Vision** is the dominant sense in human beings. Sighted people use vision to gather information about their environment more than any other sense. The process of vision involves several steps…
        1. Step 1: Gathering light
            1. The eyes **transduce** or convert light energy into neural messages.
7. The eye
    1. Step 2: Within the eye
        1. **Cornea** -The transparent protective coating over the front part of the eye.
        2. **Pupil** -small opening in the iris through which light enters the eye.
        3. **Iris** -colored part of the eye.
        4. Lens -transparent part of the eye inside the pupil that focuses light onto the retina.
        5. **Retina** -lining of the eye containing receptor cells that are sensitive to light. Transduction occurs here.
    2. Step 3: Transduction
        1. **Transduction** – Process by which sensory signals are transformed into neural impulses.
        2. **Receptor cell** - Specialized cell that responds to a particular type of energy.
        3. **Rods** - Receptor cells in the retina responsible for night vision and perception of brightness.
        4. **Cones** - Receptor cells in the retina responsible for color vision.
        5. **Fovea** - Area of the retina that is the center of the visual field.
        6. **Optic nerve** - The bundle of axons of ganglion cells that carries neural messages from each eye to the brain.
        7. **Blind spot** - Place on the retina where the axons of all the ganglion cells leave the eye and where there are no receptors.
        8. **Optic chiasm** - Point near the base of the brain where some fibers in the optic nerve from each eye cross to the other side of the brain.
8. Visual information processing
    1. Step 4: In the Brain
        1. The brain has specialized cells called **feature detectors**. These cells specialized in exactly what they say - they detect features like angles, lines, edges, and movements.
        2. Unlike computers that use "serial processing" (they do operations one-at-a-time), our brains handle **parallel processing** or handle several tasks simultaneously. For instance, while looking at a bird, we process its color, motion, form and depth all at the same time.
9. Color vision
    1. Theories of color vision…
        1. **Trichromatic theory** - Theory of color vision that holds that all color perception derives from three different color receptors in the retina.

2. **Opponent-process theory** - Theory of color vision that holds that three sets of color receptors respond in an either/or fashion to determine the color you experience.
3. Colorblindness - Partial or total inability to perceive hues.
4. **Trichromats** - People who have normal color vision.
5. **Monochromats** - People who are totally color blind.
6. **Dichromats** - People who are blind to either red-green or yellow-blue.

10. Hearing: The stimulus input: sound waves
    1.
        1. The ears contain structures for both the sense of hearing and the sense of balance. The eighth cranial nerve (vestibulocochlear nerve made up of the auditory and vestibular nerves) carries nerve impulses for both hearing and balance from the ear to the brain.
        2. Terms relating to sound include…
            1. **Amplitude** – The height of the wave, which determines the loudness of the sound, measured in decibels.
            2. **Frequency** - The number of cycles per second in a wave; in sound, it's the primary determinant of pitch.
            3. **Hertz** (Hz) - Cycles per second; unit of measurement for the frequency of waves.
            4. **Pitch** - Auditory experience corresponding primarily to frequency of sound vibrations, resulting in a higher or lower tone
            5. **Decibel** -The magnitude of a wave; in sound the primary determinant of loudness of sounds
11. The ear
    1. **Ear canal** – Also called the auditory canal, carries sound waves into the ear.
    2. **Eardrum** - A membrane at the end of the auditory canal. It vibrates due to sound waves.
    3. **Hammer, anvil, stirrup** - The three small bones in the middle ear that relay vibrations of the eardrum to the inner ear.
    4. **Oval window** - Membrane across the opening between the middle ear and inner ear that conducts vibrations to the cochlea.
    5. **Round window** - Membrane between the middle ear and inner ear that equalizes pressure in the inner ear.
    6. **Cochlea** - Part of the inner ear containing fluid that vibrates which in turn causes the basilar membrane to vibrate. For psychology, this may be the most important part of the ear because this is where sound waves are converted into neural impulses.
    7. **Basilar membrane** -Vibrating membrane in the cochlea of the inner ear; it contains sense receptors for sound.
    8. **Organ of Corti** -Structure on the surface of the basilar membrane that contains the receptors cells for hearing.
    9. **Auditory nerve** -The bundle of neurons that carries signals from each ear to the brain.
    10. **Pitch theories** - As with color vision, two different theories describe the two processes involved in hearing pitch:
        1. **Place theory** -Theory that pitch is determined by the location of greatest vibration of the basilar membrane.
        2. **Frequency theory** -Theory that pitch is determined by the frequency with which hair cells in the cochlea fire.
12. Hearing loss and deaf culture
    1. Hearing loss occurs when people lose all or some of their ability to hear because of loud noises, infections, head injuries, brain damage and genetic diseases. Hearing loss is common in older people. There are several types of hearing loss:
    2. Conductive Hearing Loss: This occurs when sound vibrations from the tympanic membrane to the inner ear are blocked. This may be caused by ear wax in the auditory canal, fluid buildup in the middle ear, ear infections or abnormal bone growth.
    3. Sensorineural Hearing Loss: This occurs when there is damage to the vestibulocochlear (auditory) nerve. This type of hearing loss may be caused by head injury, birth defects, high blood pressure or stroke.
    4. Presbycusis: This occurs because of changes in the inner ear. This is a very common type of hearing loss that happens gradually in older age.
    5. Tinnitus: People with tinnitus hear a constant ringing or roaring sound. The cause of this ringing cannot always be found. Some cases of tinnitus are caused by ear wax, ear infections or a reaction to antibiotics, but there are many other possible causes of this disorder.
13. Touch
    1. There are four types of touch sensation: pressure, warmth, cold, and pain.
    2. Stimulating these spots produces these results…
        1. Adjacent pressure spots yield tickling.
        2. Stroking pressure spots yield itching.
        3. Touching cold and pressure spots yields a wet sensation.
        4. Touching warm and cold together yields a hot sensation.
    3. The **rubber hand illusion** shows top-down influence.
        1. Here, a fake hand is stroked along with a person's other real hand which is hidden. In most people, they'll feel a sensation in their other non-stroked hand.
        2. This illustrates both the bottom-up influence of touch sensation, but also the brain's top-down expectation of feeling the stroking in both hands.

4. **Kinesthesis** is a person's ability to know the position and movement of your body parts. This why you're able to touch your nose with your eyes closed.
5. People have a **vestibular sense** that monitor's your head's position and movement (therefore it also monitor's your body's position and movement).
    1. This "gyroscope" is in your inner ear. The **semicircular canals** are arranged in a 3D fashion. **Vestibular sacs** are filled with fluid and connect the canals with the cochlea.
    2. When you move, the fluids activate hair cilia that tell your brain you're moving.
    3. Dizziness or motion sickness occurs when the fluids here keep moving.

14. Pain
    1. Pain is the body's warning sign that something isn't right.
    2. The sense of pain doesn't have one receptor cell, like vision. Instead, pain has three receptors, called nociceptors, that detect harmful temperature, pressure, and chemicals.
    3. The **gate-control theory** of pain says there is a "gate" in the spinal cord that switches pain on and off.
        1. The spinal cord has small nerve fibers that conduct pain and large nerve fibers that conduct everything else. When you're hurt, the small fibers are activated and you feel PAIN! Then the large fibers block the sensation to the brain and you feel no pain.
        2. This theory is supported by things like massage and acupuncture that stimulate *other* areas (the large fibers) and thus cut down on pain.
    4. Pain can also be stopped by **endorphins**, nature's pain-killer.
    5. In **phantom limb sensation**, the brain can even produce pain in limbs that are not even there. Similarly, people with hearing loss often have **tinnitus**, a constant ringing in the ears.
    6. Even though we use our eyes, ears, etc., these are just tools to get info to the brain. The brain is where things happen; it's where we feel, see, hear, taste, and smell.
    7. Other factors influence pain…
        1. There are psychological influences to pain like an athlete who's focused on the game and unaware of an injury, or the rubber hand illusion where a fake finger is bent backward and the person says they feel it in their real finger. Also, memories of pain tend to focus on the peak of the pain and the end of the pain.
        2. There are socio-cultural influences to pain. People tend to feel more pain when they see others in apparent pain.
    8. There are many ways that attempt to control pain.
        1. Placebos can help reduce pain. Being given a placebo that the person *thinks* is real causes the body to release its natural pain-killers.
        2. Distraction is a very effective way to reduce pain. Examples of this include chatting to a person while giving them a shot or MRI scans during a "virtual reality" session that reveal lower activation of pain in the brain.

15. Taste
    1. There are five basic taste sensations that our tongues can pick up: sweet, sour, salty, bitter, and the newcomer called umami (a meaty taste).
    2. Taste buds on our tongue that sense the chemicals in our foods and drinks.
    3. Expectations also play a huge role in taste. Before you bite into a lemon, your brain and body begin to prep you for what you expect to taste. Just *thinking* about biting into a lemon can make your mouth pucker.
    4. **Sensory interaction** is two or more senses working together. Taste and smell go together – it's hard to taste anything while holding your nose.
        1. As another example, there's the **McGurk effect** where sight and hearing go together. If we *see* a person say one thing but *hear* them saying something else, the result is that we will hear a *third* sound that's a blend of the two.

16. Smell
    1. Smell, AKA "olfaction" is another chemical sense. There are 5 million receptor cells in the nose that pick up part of whatever is being smelled.
    2. Like letters mixing to make words, our olfactory receptor cells mix and mingle with one another to create the myriad of possible smells.
    3. Each person, except identical twins, has an identifiable scent, like a smell-fingerprint.
    4. "Good smells" are often learned. If we smell something, then something good happens, we associate the smell with the good thing. Thus, the smell becomes good.

17. Form perception
    1. When we sense something we do more than just take in light and sound etc. We process the info and turn it into something meaningful. For instance, a million leaves, some bark and branches are perceived as a tree.
    2. A **gestalt** is a whole sum of multiple parts. The idea is that the whole, the sum of the parts, is greater than the individual parts. We're hardwired to look for the whole.
        1. An example might be a bunch of small squares arranged in a circular pattern. If you asked a person, "What do you see?" they'll likely say, "A circle." They see the whole, not individual squares.
    3. In a **figure-ground** situation, we can look at a figure against a background. Or we can switch the background to be the *figure* we're looking at, and the old figure becomes the new *ground*. Doing this can make us see different things.

4. When we look at things, we lump similar things into like groups and we like things complete. This is called grouping. There are several ways that we group things:
    1. **Proximity** – things close to one another are grouped together.
    2. **Similarity** – things alike are grouped.
    3. **Continuity** – we like things that are unbroken.
    4. **Closure** – we like to complete things that are not complete. We'll finish a circle only 90% complete.
    5. **Connectedness** – we like things are linked or brought together.

18. Depth perception
    1. **Depth perception** is the ability to see things in 3D which helps us gauge distance.
    2. Depth perception starts early. In the **visual cliff** experiment, babies would not crawl across a glass table because they perceived a drop-off.
    3. Since our eyes are about 2 ½ inches apart, we get **binocular cues**. This means that while viewing close objects, we see things from slightly different angles. This is called **retinal disparity** which **enables our brain's to judge the distance of objects we're looking at**.
        1. This is seen in the "finger sausage" example where you hold fingers close to your nose then see a third "finger sausage" floating in the middle.
        2. 3D movies use retinal disparity by filming with two cameras a few inches apart.
    4. We get **monocular cues** at greater distances because things are too far away for binocular cues to matter. There are several monocular cues:
        1. **Relative height** – things seen higher up are perceived as farther away.
        2. **Relative size** – things small are perceived as farther away.
        3. **Interposition** – when things are "stacked", the one that's covered up is farthest, the one that's not covered is closest.
        4. **Linear perspective** – parallel lines, like railroad tracks, converge in the distance; the more they converge, the farther away.
        5. **Light and shadow** – close objects reflect more light, farther ones appear dimmer.
        6. **Relative motion** – while we move, things close to us appear to move fast in the opposite direction; things farther away appear to move very slowly or not at all.

19. Motion perception
    1. In the **stroboscopic effect**, we perceive a series of still photos (like a film) as having continuous motion.
    2. In the **phi phenomenon**, two lights flashing alternately gives the perception one light moving back-and-forth. This is seen in neon lights or marquee signs that are "animated".

20. Perceptual constancy
    1. We expect things to retain constancy in terms of angles, distances, and illumination.
    2. **Shape constancy** is our tendency to expect things to retain their shape. A door viewed from different angles actually looks like a trapezoid, but our expectations are that it's a rectangle.
    3. **Size constancy** is our tendency to expect things to retain their size. A bus view from miles away looks small, but we expect it to be big enough for lots of people to fit inside.
        1. In the **moon illusion**, the moon on the horizon looks huge, but straight above, it looks small. This is because on the horizon, the moon has distance cues like a house or tree that fool us. Up high, there are no cues.
        2. In the **Ponzo illusion**, two equal-size lines appear different lengths if placed between two converging lines. The one in the back looks longer because the monocular cue of "linear perspective" fools us.
        3. An **Ames room** is a funky-shaped room with angular dimensions. Since we expect a room to be at 90° right angles, the room fools us. Two people of equal height seem very different in height depending on where in the room they stand.
    4. **Lightness constancy** is our tendency to expect things to retain their lightness.
    5. **Color constancy** is our tendency to expect things to retain their color. Yet we can be fooled because we perceive colors in relation to their surroundings. When the surroundings change, our perception of the color changes too.

21. Sensory deprivation and restored vision
    1. On rare occasions, people are born without sight but then later gain it. The question is, can they recognize things they've come to know by touch only? The answer is mixed…
        1. These people could distinguish figure and ground.
        2. They could also sense colors. These facts suggest that we're born with these abilities.
        3. These people could not recognize by vision things they knew by touch.

22. Perceptual adaptation
    1. **Perceptual adaptation** is our ability to adjust to changes in our sensations. For example, we eventually get used to new glasses that make the world look funky.
        1. This is seen via "inversion goggles". These goggles can skew our vision by a large degree, usually 40° to one side. At first, we're way off. After a while, we get accustomed to the skew and start to see normal.
        2. The same is true of inversion goggles that flip our vision upside down. After days, the world will flip back to normal (thanks to our amazing brain doing the work for us).

23. Perceptual set
    1. What we've already seen and experienced (and thus expect) add up to what's called a **perceptual set**.
        1. Once we have a perceptual set in place, we often have trouble seeing what's really there. For example…

    2. A log floated in Loch Ness, but people, expecting to see the "monster", indeed perceived the log as the monster.
2. The **context** also impacts our perception. When something is out of context, we often misperceive it.
    1. For example, if someone said, "It's wagging its tail, that cute little log," we'd likely hear "dog" because that's the context.
    2. The key to context is that everything is relative. A 6'9" basketball player is tall, until he stands beside a 7'9" basketball player.
3. Our emotions and motivations also influence our perceptions.
    1. The emotional state that you're in, positive or negative, can influence your perceptions. For instance, a hill looks huge to a tired person, not so big to a refreshed person.
    2. When a motivation is linked to a sensation, people are more likely to perceive the hoped-for perception.
        1. This was seen in an ambiguous picture of a horse/seal. If prompted with a reward to see one or the other, people quickly saw it.

24. Claims of ESP
    1. Half of all people believe in **ESP**, AKA "**Extra Sensory Perception**". ESP is the belief that some people can sense things beyond our normal senses (sight, sound, etc.). ESP believers feel people some are "psychic" or they can "feel it", read minds, are clairvoyant and the like.
    2. Premonition or pretensions?
    3. Putting ESP to experimental test

Unit 5: States of Consciousness

- Introduction

1. The idea of "consciousness" dates to the roots of psychology. But by the 1960s, consciousness had been almost entirely removed and replaced by behaviorism (that which can be observed).
2. Around 1960, neuroscience made the study of consciousness possible again.
    1. Monitoring the brain (and thus consciousness) made this possible.
    2. Altered states of consciousness (like hypnosis and the effect of drugs) also became popular.
    3. The importance of cognition (mental processes) was also recognized.
3. **Consciousness** is our awareness of ourselves and our environment.

- Biological rhythms and sleep

1. While asleep we're not totally "out of it" or totally unconscious. For instance, we respond to sounds.
2. People are built on an inborn 24-hour biological clock called the **circadian rhythm**. It regulates things like when we wake up, when we feel sleepy.
    1. Light in the morning hits our retinas which activates our ***suprachiasmatic nucleus*** **(SCN)** in our brain which cuts down the pineal gland's production of melatonin, the sleep hormone.
    2. Being in bright light at night cuts down on sleep. As a result of lights in the modern world, many people get less sleep. Their bodies have taken on a 25-hour day (which throws off their night-day sleeping habits).
3. Sleep is not an on-off thing. There are 5 cycles built into sleep.
    1. **Stage 1** – As you fall to sleep, an EEG registers slow **alpha waves**. You're awake, but very relaxed, then slip into sleep. Breathing is slow and brain waves are irregular.
        1. Stage 1 sleep is brief.
        2. Alpha waves are very short in amplitude and tight in frequency. Theta waves begin with hi amplitude and low frequency.
        3. It may contain hallucinations, a sense of falling (ever jumped back awake?), or floating weightlessly.
    2. **Stage 2** – This lasts about 20 minutes. An EEG shows **sleep spindles** which appear as very rapid, close flickers on the graph. Theta waves on an EEG may also show a **K-complex** which appears as a distinctly large and lazy flicker on the graph.
        1. Sleeptalking may occur herebut it also may occur at *any other* sleep stage.
    3. **Stage 3** – This is a transitional stage between 2 and 4.
        1. An EEG shows some large, slow **delta waves** that look lazy on a graph.
    4. **Stage 4** – This last about 30 minutes and is deep sleep.
        1. An EEG shows even more delta waves.
        2. This is where you're "out of it" and may not hear loud noises like thunder.
        3. Children may wet the bed or sleepwalk.
    5. **REM sleep** – This is the 5th phase and the most important. This is where you brain is the most active. Oddly, whereas your body rests by doing little or nothing, your brain rests by working.
        1. After about an hour of going from stages 1, 2, 3, and 4, you leave what's called **NREM sleep**. Then you start going back through the stages – 4, 3, 2 and into REM sleep.
        2. REM (rapid eye movement) first lasts about 10 minutes.
        3. An EEG shows that your brain waves are very similar to when you're awake.
        4. Your pulse increases, your breathing becomes rapid and irregular. Your eyes shoot back and forth quickly.
        5. Your brain blocks messages to the motor cortex – you're paralyzed.
        6. You can't be easily awakened.
        7. REM sleep brings on dreams that are very realistic – emotional, storylike, and vivid.
    6. This 5-part sleep cycle goes through itself about every 90 minutes. Thus in a normal-length night, we go through about 4 sleep cycles.
4. Why do we sleep?
    1. People of different ages sleep different amounts of time. Children sleep longer, adults shorter.
    2. In the U.S., adults sleep just over 8 hours per day. Without lights or distractions, adults will sleep about 9 hours.
    3. Thus, we tend to have a sleep deficiency. There are good effects of enough sleep and bad effects of a deficiency…
        1. Getting enough sleep means we concentrate better, are in better moods, are less hungry/obese, have stronger immune systems, and have lower chances of accidents.
        2. Not getting enough sleep means the opposite of those things listed above. Other results of sleep deficiency are poor studying, less productivity, mistakes, crankiness, and feeling tired (imagine that!).
5. Sleep theories
    1. There are several theories to answer the question, "Why do we sleep?" They are…
        1. Sleep protects – This theory has the idea that we're safer at night while asleep. We won't bang into dangerous things in the dark.

2. Sleep helps us recuperate – Brain activity creates toxins as a byproduct called "free radicals". The idea is that sleep helps cleanse these from our brains by giving neurons a time to rest.
3. Sleep makes for memories – After all of our daily activities, sleep enables our brain to sort things into their proper spots, so to speak. This helps with our memories later.
4. Sleep can fuel creativity – Many great ideas come while asleep or dreaming. Or, many great ideas come just after a good night's sleep.
5. Sleep helps with growth – The pituitary gland, the growth gland, secretes a growth hormone while in deep sleep.

6. Sleep disorders
    1. **Insomnia** is the persistent inability to sleep or to fall asleep. It's not the occasional inability to sleep.
        1. Insomnia can't be "fixed" with alcohol or sleeping pills. These only reduce REM sleep and make the person feel even more sluggish the next day.
    2. **Narcolepsy** is a disorder where the person (or animal) simply falls asleep suddenly, out of the blue. It can be a problem because the person may fall asleep at a very bad or unsafe moment.
    3. **Sleep apnea** is a disorder where the person stops breathing at night, awakens, then breathes again.
        1. Most people don't even know they're waking, even though it can happen hundreds of times per night.
        2. Overweight men are especially prone to apnea.
        3. It can be treated by wearing a special mask.
    4. **Night terrors** attack children mostly. A child may sit up, walk, mumble, their pulse and breathing may double, and they may seem terrified.
        1. Night terrors are not nightmares. Terrors occur in stage 4 sleep. Nightmares occur during REM sleep and usually have a story or plotline to them.
        2. Children may also experience sleepwalking and sleeptalking.

☐ Dreams

1. REM dreams are the most important. They are realistic, emotional, and often don't make sense.
2. Dream stats and facts…
    1. 8 out of 10 dreams have something negative in them, like we're being attacked or we receive some sort of rejection.
    2. Dreams with sexual overtones are much less common. Men have dreams with sexual overtones 1 out of 10 times. Women, only 1 out of 30 times.
    3. Sensory stimuli can be woven into our dreams. That is to say, if we actually smell or hear something in real life, that smell or sound might get mixed right into our dream.
3. There are several theories that try to answer the question, "Why do we dream?" They are…
    1. To satisfy our wishes.
        1. This theory was started by Sigmund Freud. In Freud's mind, everything revolves around sex and aggression.
        2. What we experience in our dreams is what he called the "**manifest content**". The manifest content symbolized the latent content (which is hidden).
        3. The **latent content** is our subconscious drives (sex and aggression) that would be problematic if acted out in real life. For instance, if a guy wanted to have sex with a supermodel, and he really did it, he'd probably get arrested for rape.
        4. In Freud's mind, dreams act as a safety-valve to let out our subconscious drives in a way that's not destructive.
    2. To file memories.
        1. This theory thinks of the brain like a computer – it needs to file away memories and experiences into their proper spots for future reference.
        2. While these memories are being "filed", they may flash into our minds and thus create dreams.
    3. To develop and preserve neural pathways.
        1. This theory holds that dreams give the brain stimulation while sleeping in order to develop neural networks.
        2. The evidence to support this theory is that infants and children have brains in the developmental stages. And, they also experience more REM sleep than adults. Thus, the correlation suggests that dreams may aid in brain development.
    4. To make sense of neural static.
        1. This theory holds that we have neural activity originating in the brain stem while sleeping. Thoughts come into our brains in a rather random fashion. Our brain doesn't like things that don't make sense, so, our brains assemble the thoughts into a dream.
    5. To reflect cognitive development.
        1. This theory believes that dreams are simply the result of a maturing brain.
        2. Evidence to support this theory is that…
            1. Children tend to dream in "slide-show" fashion.
            2. Adults tend to dream in a more complex, narrative story fashion.

Hypnosis facts and falsehoods

1. Hypnosis brings up a lot of notions, many of which are wrong. The bizarre work of Franz Mesmer (source of the term "mesmerize") has a lot to do with the questionable ideas surrounding hypnosis.
2. There's agreement that the hypnotist is less important than the subject's openness to suggestion.
3. Still, there are many questions surrounding hypnosis…
    1. Can anyone experience hypnosis?
        1. Most people can to some degree. The degree depends on their openness to suggestion.
        2. About 20% are highly suggestible. They can be led to smell things, or ignore a smell, like a bottle of ammonia.
    2. Can hypnosis enhance recall of memories?
        1. Hypnosis doesn't enhance your memory. The idea that "it's in there, I just can't get to it, but hypnosis helps," is wrong.
        2. Hypnosis usually mixes fact with fiction, just like our regular memories.
        3. A good example is people who think they've been abducted by UFOs. In reality, they mix their "memory" with what they've come to understand is a "typical" UFO abduction.
    3. Can hypnosis force you do something you don't want to do?
        1. The answer to this question seems to be, "No."
        2. The evidence suggests that when people follow a hypnotist, they're largely doing it to be "good subjects", not mindless robots.
    4. Can hypnosis be therapeutic?
        1. The answer here is, "Yes."
        2. Hypnosis can heal, such as headaches, asthma, stress-related skin disorders, and obesity.
        3. Trying to get a person to respond after hypnosis, such as saying, "You will NOT want to order dessert," is called **posthypnotic suggestion**.
    5. Can hypnosis reduce pain?
        1. The answer here is, "Yes."
        2. For example, a hypnotized person can often dunk their arm in ice-water and feel less pain than a non-hypnotized person.

Explaining the hypnotized state

1. There are two main theories that try to explain what's going on when a person is hypnotized. They are…
    1. Social influence theory
        1. This theory says that a person being hypnotized is doing little more than playing the role of a hypnotized person. The person is acting like a "good subject".
        2. The subject's thinking is, "I'm expected to be hypnotized and do what the hypnotist tells me, so, that's what I'll do."
    2. Divided consciousness theory
        1. This idea centers on the concept of dissociation. **Dissociation** says we have split layers of consciousness (we're aware of more than one thing at any given time).
        2. The evidence to support this theory is that…
            1. Most psychologists think the social influence theory has at least some impact. But, many go further with the "divided consciousness" theory.
            2. When hypnotized people were asked to imagine a color, areas of their brain "lit up" as if they actually saw it.
            3. Hypnotized people did better at saying what color they saw when a color-word (like red) was printed in green ink.

Dependence and addiction

1. Increased use of a drug leads to **tolerance** where a larger dose is required to get the same effect from a drug.
2. Upon stopping a drug's use, a frequent user will likely experience withdrawal. A person experiencing **withdrawal** may feel physical pain and strong cravings.
    1. Pain and cravings are signs of physical dependence – a strong indication of addiction.
    2. Stress-relieving drugs may create psychological dependence. Here, the mind thinks it needs the drug (though the body doesn't react to being cut off).
3. Drug **addiction** is a compulsive craving despite consequences to use. Physical symptoms often accompany an addiction. There are some myths to addiction…
    1. Addictive drugs will get you hooked very fast. For highly addictive drugs, about 10-15% of users will get hooked after initial use.
    2. A person can't get over addiction on his or her own. Although it's good to get help, people can do it on their own. For example, most people who kick the smoking habit did it by themselves.

3. Addiction can be applied to any pleasurable activity. The word "addiction" is now used with gambling, sex, the Internet, and other behaviors. It may be an overstatement to actually say a person is addicted to something like social networking.

- Psychoactive drugs

1. **Depressants** are sometimes called "downers" because they slow down the body.
    1. **Alcohol** has many effects…
        1. It lowers inhibitions (it's a "disinhibitor"). An "inhibition" is our common sense that tells us, "Maybe I shouldn't do that." Alcohol turns this common sense off. This means that when drinking, we'll do things that we normally would NOT do.
        2. It slows processing speed. We react slower, think slower, and speech is slurred.
        3. It disrupts memory and impairs judgment.
        4. It cuts self-awareness and self-control. This is why people who are "down in the dumps" (like they just got fired) often turn to alcohol – it takes their minds off of themselves.
        5. It's impacted by the person's expectations. This means that people have ideas about how people act while drinking (even if they only think they've been drinking). This expectation shapes their behavior.
        6. It correlates with risky sex. This means that drinking alcohol and risky sex go together – they co-relate.
    2. **Barbiturates** produce about the same effects as alcohol.
        1. Larges doses can cause impaired memory, judgment, or death.
    3. **Opiates** are drugs derive from opium, such as morphine, codeine, or heroin.
        1. Opiates cause one's pupils to dilate, slows breathing, and creates sluggishness.
        2. They leave the person craving more, but tolerance means a person would need higher doses for the same effect. Withdrawal results if a person stops using them.
2. **Stimulants** are sometimes called "uppers" because they speed up the body.
    1. Stimulants cause the pupils to dilate, one's pulse and breathing rates to increase, energy and confidence to increase, and appetite to drop.
        1. Cutting out a stimulant result in fatigue, headaches, crankiness, or depression.
    2. **Methamphetamine** (AKA "**meth**")
        1. Meth stimulates the release of the neurotransmitter dopamine, which naturally improves your mood.
        2. But, meth can permanently drop your natural dopamine levels. This leaves you depressed.
        3. Meth is highly addictive and very dangerous.
    3. **Caffeine** is the world's most common psychoactive drug.
        1. It usually lasts about 3-4 hours.
        2. Regular use results in tolerance. Stopping it can result in withdrawal symptoms of fatigue and headaches.
    4. **Nicotine** is also very common.
        1. It's estimated that 10,000 people worldwide die from smoking per *day*. If a teen started smoking, then smoked until he died, he'd have a 50% chance that the smoking killed him.
        2. Tolerance results, so smokers must smoke more for the same effect.
        3. Withdrawal results when a person tries to quit, including cravings, insomnia, anxiety, and crankiness.
        4. Nicotine starts to take effect after only 7 seconds of being smoked. It is as addictive as heroin or cocaine.
        5. It triggers the neurotransmitters epinephrine and norepinephrine.
    5. **Cocaine** produces a fast (but short) high and is followed by depression.
        1. The good feeling result from a rush of dopamine, serotonin, and epinephrine. Reuptake is blocked by the cocaine. Thus the neurons are left depleted which results in a "crash" (depression).
    6. **MDMA (Ecstasy)** is both a stimulant and a mild hallucinogen.
        1. It starts the release of dopamine, but also releases serotonin and blocks its reuptake.
        2. MDMA takes about an hour to "kick in" then lasts about 3 to 4 hours.
        3. A major negative effect is dehydration. This can lead to overheating and death.
        4. Another major negative is that natural serotonin production can be permanently damaged which can lead to permanent depression.
    7. **Hallucinogens** create perception without sensory input (the definition of "**hallucination**").
        1. **LSD** is a powerful and dangerous psychedelic drug.
            1. LSD users sense extraordinary shapes, colors, etc.
            2. It acts in the same way a subtype of serotonin acts.
            3. Typical experiences are: geometric images, a tunnel or funnel image, past emotional experiences, and a feeling of mind-body separation.
                1. These same "symptoms" are typical of people who experienced "near-death". Oxygen deprivation yields these same results.
        2. **Marijuana** contains the active ingredient **THC**.
            1. It acts like alcohol in that it relaxes, it's a disinhibitor (you do things you normally wouldn't), and can give a "high" feeling.
            2. Unlike alcohol (which the body rids after hours), THC lingers for a month or more. Frequent users can thus get the same effect on less than infrequent users.

3. Marijuana increases sensations (sight, sound, etc.)
4. It impairs your judgment and your memory.

8. Influences on drug use

1. Abuse stats…
    1. Drug use among high school seniors peaked in the late 1970s.
    2. Anti-drug education campaigns in the 1980s cut abuse significantly.
    3. Beginning in the early 1990s, drug abuse began to rise again. This was due to (a) easing anti-drug programs and (b) some glamorization of drugs in the media. Still, abuse didn't reach late 70s levels.
2. In attempt to answer the question, "Why do people abuse drugs?" there are three main theories…
    1. Biological influences
        1. This theory believes that some people are biologically and/or genetically inclined to use drugs.
        2. Twin and adoption studies seem to support a link between drug use and heredity.
        3. Excitable boys (a hereditary trait) are more likely to abuse drugs.
        4. Genes have been identified that link to alcohol and tobacco abuse.
    2. Psychological influences
        1. If a person feels their life is useless or are depressed, they're more likely to abuse drugs.
    3. Socio-cultural influences
        1. Teens usually drink because their peers are doing it.
        2. Different countries have different views on drug use. Some may say it's terrible, others may say it's not-so-bad. This affects a person's willingness to try the drug.
        3. A person's religion also plays a large role, usually in NOT doing drugs.
        4. Other factors include…
            1. Where you live – people in cities do more drugs than the country.
            2. If friends do drugs, you're likely to as well.
            3. Happy families have kids less likely to do drugs.
            4. A young person is likely to do drugs if peers do drugs, or even if that person thinks peers do drugs

Unit 6: Learning

1. Introduction
    1. Animals tend to live by an instinctive genetic code. For example, a salmon's life is pretty much hard-wired into its genes – birth, youth in the stream, adulthood in the ocean, then return to the stream to spawn and die.
    2. Humans also have an instinctive genetic code, but we however, can adapt to our environment and learn new behaviors and make changes.
    3. **Learning** is defined as a relatively permanent behavior change due to experience.
    4. This brings up the question, "How do we learn?"
        1. We learn by making **associations**. This is connecting events that occur one after another. These events can be good, like connecting the birthday song to eating cake, or bad like seeing a flash of lightning then hearing loud thunder.
        2. If a stimulus occurs normally in an environment, an animal's natural response may dwindle. This lessening of a response is called **habituation**. Think of the stimulus as becoming habit, so why respond to it?
        3. The examples above illustrate **associative learning**.
    5. To a psychologist, "learning" is more specific than what we think of learning in school. To psychologists, there are three main types of learning…
        1. **Classical conditioning** occurs when we associate two stimuli and thus expect a result.
        2. **Operant conditioning** occurs when we learn to associate our own behavior (or our response) and its consequence. We therefore repeat behaviors with good results, we cut down on behaviors with bad results.
        3. **Observational learning** occurs by watching others' experiences.
        4. One additional form of learning is through language. In this way, we can learn without experiencing something or watching someone else experience it.
2. Pavlov's experiments
    1. Classical conditioning falls under the psychological approach called **behaviorism.** Behaviorism is only concerned with observable behavior – things an animal or person does that can be seen and counted (measured).
        1. Behaviorism shunned the "mentalist" approaches as hogwash. They're unconcerned with anything that goes on in your head. They're only concerned with what you do, your behavior.
    2. **Ivan Pavlov** is the godfather of behaviorism.
        1. Pavlov was a Russian doctor who used dogs as his subjects.
        2. He noticed dogs salivated at the sight of food. This is a natural reaction. He wondered if he could associate something *unnatural* to salivation.
            1. Pavlov rang a bell, then fed the dog. The bell meant nothing to the dog.
            2. He repeated this over and over and over until, the bell did mean something – the bell meant food was coming!
            3. Eventually, the bell alone could cause the dog to salivate.
            4. He rigged tubes to the dog's neck to measure the salivation (and thus the response).
        3. Using this dog experiment, we can see the "parts" of classical conditioning…
            1. **UCS (unconditioned stimulus)** – this is the natural stimulus – the food.
            2. **UCR (unconditioned response)** – this is the natural response – salivation.
            3. **CS (conditioned stimulus)** – this is what's associated to the UCS – the bell.
            4. **CR (conditioned response)** – this is the response (which is the same as the UCR) – salivation.
        4. The key to classical conditioning is that it's a natural thing, there is no decision involved. Usually it's a biological process over which the person/animal has no control.
            1. A person could be classically conditioned using the pucker response to a lemon, or cringe response to fingernails on a chalkboard, or dilated eyes to the change from light to dark.
    3. There are five main conditioning processes…
        1. **Acquisition** is the initial learning of a stimulus-response relationship. This is where the dogs learned to associate the bell and food.javascript:;
        2. **Extinction** is the diminished association between the UCS (food) and the CS (bell) after the UCS is removed. In other words, if you stop nailing the food and the bell together, the link wears off – the bell goes back to meaning nothing to the dog.
        3. **Spontaneous recovery** emerges even after extinction. This is when, after a time lapse, the association between the UCS and the CS reappears. The association is not as strong as before, and will wear off if not linked with the CS.
            1. See the graph at the bottom of this page.
        4. **Generalization** is the tendency to respond to a similar CS. For instance, Pavlov's dogs might feel that a buzzer is close enough to a bell and they might salivate to a buzzer. Or, if they're conditioned to respond to a white light, they might also respond to a red light.
        5. **Discrimination** is drawing the line between responding to some stimuli, but not others. For example, Pavlov's dogs might respond to a bell or a buzzer, but discriminate against a police siren. They're essentially saying, "The buzzer is like the bell, but the siren is not."

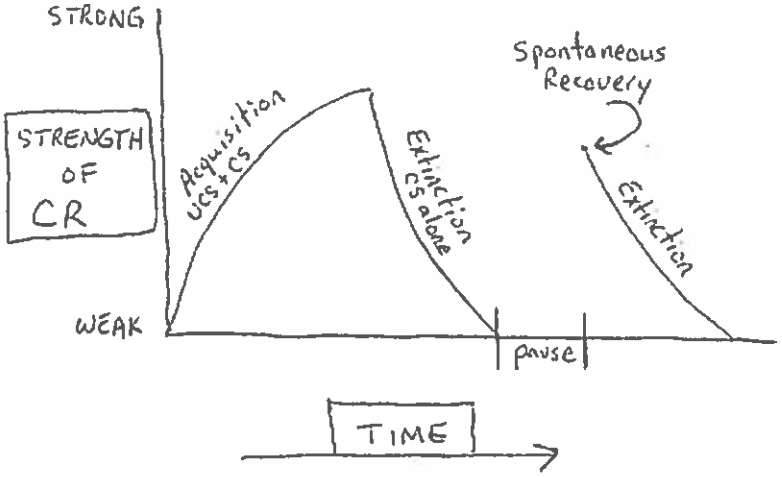
3. Extending Pavlov's understanding
    1. Behaviorists dismissed anything mental as hogwash. They might just have gone too far though, and underestimated cognitive processes (thinking, perceptions, and expectations) and biological constraints.
    2. Cognitive processes
        1. Animals, to a behaviorist, are simply very complex machines. Animals go beyond just robotic, mechanical reactions though. They get into *prediction*, a mental process.
            1. In one experiment for example, when accompanied with an unpleasant electrical shock, rats can distinguish light and a tone. They recognized that the tone was a better indicator of a coming shock. Thus, they predicted the likelihood of a shock based on the stimulus (light or tone).
        2. Animals, and people, who are trapped or just feel that they're trapped become depressed and passive. This situation is called **learned helplessness**.
            1. This was seen in an experiment by Martin Seligman with caged dogs who were given shocks. They eventually cowered in fear. Even after the trap was "unlocked" and they could've escaped, they didn't try. A dog who had not learned the helplessness would quickly escape.
        3. People certainly respond to their environment but the message seems to be that, with people especially, what we think about a situation matters as well.
            1. What goes on outside of us stimulates our behavior.
            2. What goes on in our heads also affects our behavior.
    3. Biological predispositions
        1. Like it or not, animals and people are hard-wired by their biology. We naturally tend to like certain things, dislike others, and we have limitations on what we can do.
        2. The early behaviorists (Pavlov, Watson) thought all animals were the same. To them, we're simply machines responding to stimuli (our environment).
        3. However, there are non-examples to this idea…
            1. Rats associate best by using the sense of taste (rather than sight or sound). This may help them survive by distinguishing "okay" and "not okay" food to eat.
            2. Humans similarly associate very well by taste. Anyone who's ever gotten food poisoning will likely have a hard time going back to that food again.
            3. Men seem predisposed to find the color red attractive in females. The idea is that red is naturally sexy.
4. Pavlov's legacy
    1. Two major lessons come out of Pavlov's work…
        1. Classical conditioning is very broad – many responses can be associated to many stimuli in many organisms.
        2. Classical conditioning showed how something as abstract as "learning" can be studied objectively (with opinions stripped away).
    2. Applications came out of Pavlov's work as well such as the health and well-being of people.
        1. For example, a drug addict may re-enter the world and situations that were associated with getting high, then get the urge to take the drug again. Therefore, addicts are encourage to not go back to those situations.
        2. Or in an experiment, when a taste was associated with a drug that boosts the immune system, it got to the point where the taste alone was able to boost the immune system.
    3. Building on Pavlov's work, **John B. Watson** became the second well-known classical conditioning behaviorist.
        1. Watson worked with a baby known as **Little Albert**, an average baby.
        2. Watson knew that babies/people have a natural fear of sudden, loud sounds. Also, babies do not have a fear of white rats. Watson associated the two.
        3. Watson placed a white rat next to Albert. Albert wanted to touch the rat. As he reached out, Watson banged a hammer on metal just behind Albert. Albert was scared and cried. This was repeated over and over.
        4. Finally, the white rat and banging sound were associated. Merely the sight of the rat caused Albert to cry.
            1. UCS = banging sound, UCR = crying
            2. CS = white rat, CR = crying
        5. In this demonstration, there were definitely ethical problems here. Specifically, the APA's suggestion of "informed consent" wasn't met. Though Albert's mother gave the okay, he certainly didn't.
            1. After resigning in a scandal (where he eventually married his assistant), Watson went on to work for Maxwell House and start the "coffee break".
5. Skinner's experiments
    1. **Operant conditioning** differs from classical conditioning in the following ways:
        1. Classical – two outside stimuli are associated with one another.
            1. This is natural, automatic, and biological. Pavlov's dogs didn't choose to salivate. It was natural, automatic, biological.
        2. Operant – your actions are associated with consequences.
            1. The animal or person makes a choice or decision about what it does.
            2. Realize that a "consequence" can be either bad or good.
    2. **E. L. Thorndike** was the first big name in operant conditioning.

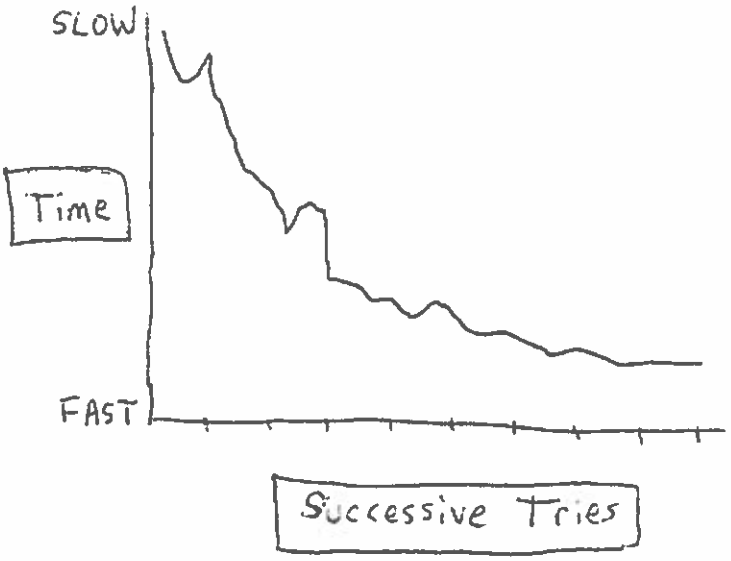
1. **Thorndike** came up with his "**Law of Effect**" which said a "rewarded behavior is likely to recur."
    1. Simply put, if you do something then get a reward, you'll likely do it again.
2. Thorndike built "puzzle boxes" and put cats in them. The cat had to do a series of things to escape.
    1. Being a behaviorist, Thorndike had to objectively measure the "learning" the cats made. So, he measured the time it took for the cats to escape after successive tries.
    2. The resulting graph showed a clear and typical "learning curve" – the cats learned quickly, then not quite as much, and then their learning leveled off.
        1. See the graph at the bottom of this page.
3. **B. F. Skinner** built on Thorndike's work and is likely the biggest name in operant conditioning.
    1. He built "**Skinner Boxes**", which were contraptions in which an animal could manipulate things and/or respond to stimuli. The responses were measured.
    2. A typical Skinner Box was set up with a (1) food dispenser, (2) water dispenser, (3) a light bulb, (4) a speaker, and (5) a lever the animal could pull. An (6) electrical shock might be added as well.
        1. Being a behaviorist, Skinner had to measure behaviors. So, each pull of the lever was tallied.
        2. Skinner typically placed pigeons or lab rats in his boxes . He used **shaping** to "teach" them to do things like walk in figure-8s or "play" ping pong. Shaping simply rewards desired behavior and directs the animal toward a desired behavior. At first, the animal is rewarded for getting close to the behavior, then rewarded for going a bit further, and finally rewarded for the actual behavior.
        3. A **discriminative stimulus** is a stimulus that an animal can distinguish from another. A pigeon might respond to a speaker making a "ding dong" sound in its box, but might not respond to a "whoop whoop" sound.
            1. These discriminative stimuli enable us to determine things like, "Can a dog see colors?" (will they respond to one color but discriminate another). Can a baby do this?
    3. There are two main types of **reinforcers** – anything that INCREASES a response.
        1. **Positive reinforcement** STRENGTHENS a behavior with a pleasurable stimulus after a response.
            1. Simply, if you do what's wanted, you get a doggie treat!
            2. For example, a dog sits and you give him a piece of a hot dog. This increases the likelihood he'll sit.
        2. **Negative reinforcement** STRENGHTHENS a behavior by removing something unpleasant.
            1. Simply, you do something to make something bad go away.
            2. For example, you hit the snooze button to make the annoying sound stop. This increases the likelihood you'll hit it again.
            3. It's important to remember, negative reinforcement is not punishment.
                1. Negative reinforcement encourages a behavior by removing something bad.
                2. Punishment discourages a behavior by adding something bad.
    4. There are two other types of reinforcers…
        1. **Primary reinforcers** are natural, they are unlearned, such as food or getting rid of pain.
        2. **Conditioned** or **secondary reinforcers** get their power by attaching to a primary reinforcer. This "attaching" must be learned.
            1. For example, in a Skinner Box, rats learned that pulling the lever (conditioned reinforcer) gave some food (primary reinforce).
6. **Schedules of reinforcement** try to the answer questions like, "When should the reinforcement be given, every time? Some times?"
    1. **Continuous reinforcement** occurs when the reinforcement is given every time the behavior is down.
    2. **Partial** or **intermittent reinforcement** occurs when the reinforcement is not given after every behavior.
        1. **Fixed ratio** – reinforcer is given after a set number of behaviors.
            1. Think of being paid for every 10 units you make on an assembly line.
        2. **Variable ratio** – reinforcer is given after a random number of behaviors.
            1. Think of pulling a slot machine handle, you never know which pull will win.
        3. **Fixed interval** – reinforcer is given after a set time period.
            1. Think of being paid every Friday.
        4. **Variable interval** – reinforcer is given after a random time period.
            1. Think of watching a bob-cork and waiting for a fish to bite.
                1. See the graph at the bottom of this page.
    3. **Punishment** is often confused with negative reinforcement. Punishment DISCOURAGES a behavior (whereas negative reinforcement encourages a behavior by removing something unpleasant).
        1. Punishment can be very effective if it's sure and swift.
        2. Physical punishment, like spanking, is looked down upon by some groups. Their belief is that:
            1. The punishment isn't forgotten, but suppressed.
            2. It teaches that it's okay to do the behavior some times, but not others.
            3. It teaches fear of the body doling out the punishment.
            4. It might increase aggressiveness by modeling aggression itself.

7. Extending Skinner's understanding
    1. Up until his death, Skinner shunned anything cognitive – anything having to do with thinking or the mental. To him, even things going on inside your head are just more behaviors in response to stimuli. We're robots.
    2. But, there seems to be evidence that's disagrees with Skinner's anti-cognitive beliefs…
        1. **Latent learning** is learning that doesn't become apparent until later when it's needed. Until then, it remains latent (hidden).
            1. **Edward Tolman** did an experiment with rats in a maze showed latent learning.
                1. There were two groups of rats – one was given a reward at each correct decision. They got to the end quickly. Another group was given no reward until they finished the maze. Needless to say, they floundered around and it took them a long time.
                2. After each group finally learned the maze, however, the second group was able to run the maze even quicker than the first group. They'd developed a "**mental maze**." This learning didn't become apparent until later.
            2. Similarly, children learn things from parents and adults that they may not use until much later in life, perhaps when they become parents themselves.
        2. **Insight learning** is learning that comes all-at-once. You may be stumped on something, but then, all-of-a-sudden, the problem is solved in a flash.
        3. **Intrinsic motivation** is the desire to perform a behavior for its own sake. This would be like reading a book just for the joy of reading it.
            1. If appears that offering rewards to something that's intrinsically motivated can actually decrease the motivation. It's as if the thinking becomes, "If they have to bribe me to do this, it must not really be worth doing."
        4. **Extrinsic motivation** is the desire to perform a behavior in order to get some type of reward. This would be like reading a book in order to get an "A" in class or to win a prize.
    3. People and animals have **biological predispositions**, meaning we're naturally good at some things and bad at others.
        1. Animals easily learn to associate things that help them to survive.
        2. And, animals don't easily learn things that don't help them survive.
            1. For example, in one experiment, pigs were being taught to pick up wooden "dollars" then put them in a piggy bank as fast as possible. The natural urge of the pigs to root with their noses slowed down their time.
8. Skinner's legacy
    1. B. F. Skinner was a controversial figure in psychology, mainly due to his belief that we were nothing more than biological reactors to stimuli. People were machines or robots.
    2. Still, he said that operant conditioning can improve our lives, such as in the fields of:
        1. School
            1. Skinner felt we'd eventually use computers alone to teach. The program would give instant feedback, right or wrong, then direct the learner to the appropriate next-step.
        2. Sports
            1. When learning a skill, we can start small, master that skill, then move to the next skill.
            2. Through shaping, we can gradually build toward the desired skill.
            3. Notably, athletes are well-known to be superstitious. If they do something just before hitting a home run, a ball player might start to think of that action as having something to do with the home run. He or she may likely repeat that behavior.
        3. Work
            1. Operant conditioning can boost productivity. For this to happen, the reinforcement needs to be specific and immediate. General reinforcers, like "merit", don't cut it.
        4. Home
            1. Parents can notice good behavior in children, reward it, then watch the behavior increase.
            2. Yelling at the child doesn't seem to help. Pointing out what's wrong is okay, but the ideal is again, to notice good behavior in children, reward it, then watch the behavior increase.
        5. Self-improvement
            1. To better yourself, first state your goal in measurable terms then announce it to someone.
            2. Secondly, monitor how you spend your time and avoid wasting it.
            3. Reinforce the desired behavior with a reward.
            4. Gradually reduce rewards. This will move the motivation away from the extrinsic and toward the intrinsic.
9. Contrasting classical and operant conditioning
    1. The differences between classical and operant conditioning can be summarized as…
        1. Classical conditioning
            1. Links two stimuli together through association.
            2. Involves a natural, biological response. There is no decision made – Pavlov's dogs salivated naturally, biologically, with no decision of their own.
        2. Operant conditioning
            1. Links a behavior to its results.

2. There is a decision made here to do or not do a behavior. Behavior that gets reinforced is more likely to be repeated.

10. Mirrors in the brain
    1. People can learn without actually experiencing something. We can learn by watching others through what's called **observational learning**. Observational learning is learning by observing others or learning without direct experience or our own.
        1. In modeling, we learn by watching and mimicking others.
        2. This is simply like the old adage, "monkey see, monkey do."
    2. We have mirror neurons that "fire" in the brain when we watch someone else doing an action. It's as though we're actually doing it, but we're just observing it.
        1. Mirror neurons improve our empathy for others. It helps us to feel others' pain.
        2. More concrete examples are how we imitate others when they yawn or how it's difficult to smile when looking at a frown, or vice versa.
11. Bandura's experiments
    1. **Albert Bandura** is the top name in observational learning.
    2. He is most famous for the **Bobo doll experiment**.
        1. In this experiment, a child watched an adult beat up an inflatable clown. The adult yelled things like, "Take that!" in the process.
        2. The children were then placed into a "play room" and mimicked the adult by beating up the Bobo doll with almost the exact same actions and words as the adult model.
        3. Children who had not observed the adult were less aggressive to the doll.
    3. Bandura felt that we…
        1. Imitate based on reinforcements and punishments that we see others get (or don't get).
        2. Will imitate people like us, who we see as successful, or who we see as admirable.
12. Applications of observational learning
    1. In business, observational learning has been applied usefully to train workers. It's best to watch someone model the appropriate behavior than to just study it.
    2. Prosocial effects of observational learning…
        1. Role models can have a very real positive impact on young people.
        2. Observational learning of morality starts at a very young age and is real.
        3. Parents who live by the "Do as I say, not as I do" mentality tend to raise kids that wind up doing what they do. Then they in turn tell their kids, "Do as I say, not as I do." Hypocrites beget hypocrites. This shows, in a not-so-good way, the power of parental role models.
    3. Antisocial effects of observational learning…
        1. Abusive parents are more likely to turn out kids who turn into abusive parents.
        2. Men who beat their wives are more likely to turn out sons who beat their wives.
        3. Are these findings more due to nature (due to genetics) or nurture (due to upbringing)? A study of monkeys leans toward saying the cause is nurture.
        4. Television takes up a lot of our time and can therefore be a powerful tool in observational learning.
            1. A person who lives to 75 years old will spend 9 years watching TV.
            2. 9 out of 10 teens watch TV daily.
            3. Kids see lots of violence on TV – 8,000 murders and 100,000 violent acts before getting out of grade school.
            4. The "violence-viewing effect" occurs when…
                1. A violent act goes unpunished (happens 74% of the time).
                2. The victim's pain is not shown (happens 58% of the time).
                3. The violence is somehow "justified" (happens about 50% of the time).
                4. The violent person is shown as attractive (happens about 50% of the time).
            5. Two key results seem to occur due to the violence-viewing effect…
                1. People imitate the behavior they see.
                2. People become desensitized to violence – we're not as shocked if we see graphic violence.
            6. Correlational studies have linked TV violence and real violence.
                1. When TV came to America in the mid-late 1950s, homicide rates rose dramatically.
                2. The same tendency was seen in other countries that got TV later. Their homicide rates spiked too in sync with TV.


STRONG
STRENGTH OF CR
WEAK
Acquisition UCS + CS
Extinction CS alone
Spontaneous Recovery
Extinction
pause
TIME


SLOW
Time
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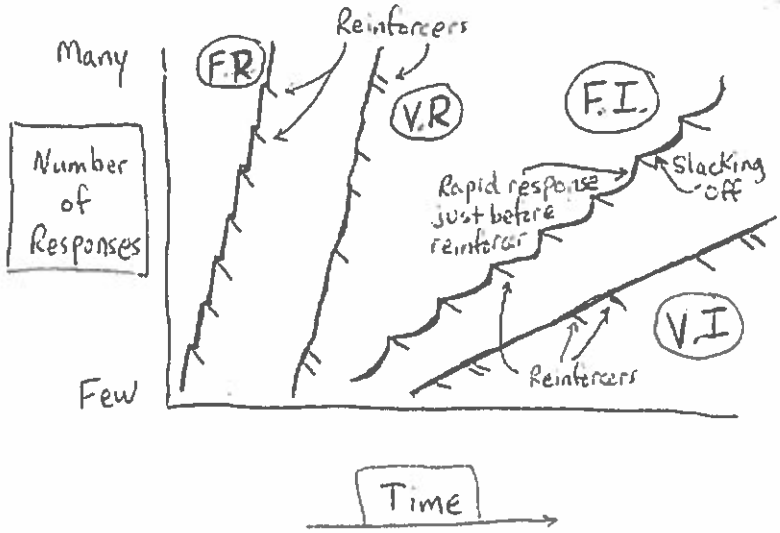

Many
Number of Responses
Few
Reinforcers
F.R
V.R
F.I.
V.I
Rapid response just before reinforcer
Slacking off
Reinforcers
Time

Unit 7: Cognition

7A: Memory

1. Introduction
    1. We are our memories. Without memory, we'd be little more than a rock.
    2. **Memory** is learning that has remained over time, information that's stored and can be retrieved.
    3. Even regular people have amazing memories.
        1. In one experiment, people were shown 2,500 slides for 10 seconds. Later, 280 slides were repeated along with never-before-seen slides. People could pick out the seen-slides 90% of the time.
        2. In another experiment, people were shown pictures. Then 17 years later, shown partial images of those pictures. Those who had seen the pictures were better at recognizing the partial images than those who'd never seen them.
    4. One idea of memory is called the **information processing model** and takes after a computer. There are three parts to this model…
        1. **Encoding** - How we get information into our brain. Like a keyboard on a computer.
        2. **Storage** - How we hold onto that information. Like a hard drive.
        3. **Retrieval** – How we get the info back out of our brain. Like a computer's file system.
    5. Another model is called connectionism. It has the idea that memories are made up of interconnected neural networks. The theory is that memories are made in three stages…
        1. A brief **sensory memory** is stored. This is like an after-image if you have your eyes closed then flashing them open-and-closed again.
        2. The info goes into **short-term memory** where it's encoded via rehearsal.
        3. Finally, the info goes into **long-term memory**.
        4. This theory is a bit limited. A modified version of this 3-step theory would also include:
            1. The idea that some memories go straight to long-term memory.
            2. There is a **working memory**, a version of stage 2. The working memory is where we focus on information that is useful or needed right then.
2. Encoding: getting information in
    1. There are two main types of encoding: automatic (where you don't think about it) and effortful (where you must purposely try to remember).
    2. **Automatic processing** takes place automatically, without any conscious effort on your part. You know the way from a classroom to the cafeteria and you walk there without even thinking about it.
        1. Whereas computers do things in sequence (called "serial processing"), the human brain can do many things at once, called **parallel processing**.
        2. Automatic processing can simultaneously handle: space (where you are), time, frequency (how often something happens), well-learned information (some things we've learned so well, like words on a sign, we process them without even knowing it).
            1. Reading is a good example of automatic processing. While first learning to read, you start with a word or two. Then maybe 50 on a page, then more. Eventually, your eyes cover pages almost as fast as they can scan the words.
    3. **Effortful processing** takes place when we put in a purposeful effort to remember something. There are three components to effortful processing. They are:
        1.
            1. **Rehearsal** is simply repetition. Hermann Ebbinghaus studied this type of memory.
                1. He made up jibberish syllables like: BAZ, KEL, NOX, or WUQ. Then he read them aloud until he remembered them. The next day he recorded how many he could remember (not many). But…
                2. The more times he'd rehearsed or repeated the syllables, the quicker he could relearn them the next day.
                3. Once learned, additional rehearsal called **overlearning** increased retention.
                4. The principle emerged: the amount remembered depends on amount of time spent learning.
            2. The **spacing effect** influences memory. This says that we remember better if we space our study or rehearsal out over time.
                1. "Mass practice" (AKA "cramming") gives quick, short-term learning and may make a person feel more confident.
                2. However, "distributed study time" yields better long-term learning.
                3. Also, in the "testing effect," repeated quizzing helps to learn material (as well as evaluate what someone has learned).
            3. The **serial position effect** suggests that, when trying to remember a list of something, you're more likely to remember the first and last ones.

1. The idea here is that while trying to remember the first things, your learning of them interferes with your learning of the ones that follow. This is called the "primacy effect."
2. Then, you're likely to remember the last one or two because they're in your working memory. This is called the "recency effect."

2. What we encode is sometimes a mystery. We immediately ignore some things, work to remember some things, and remember others without much or any effort at all.
    1. What we encode is affected by its context. This means that what we already know impacts what we take in and how we remember it. This can sometimes mess us up.
    2. There are three types of encoding techniques for verbal information…
        1. **Visual encoding** – refers to images and shapes.
        2. **Acoustic encoding** – refers to sounds.
        3. **Semantic encoding** – refers to meanings of words.
        4. A study tried to measure which of these was most effective to memory. Words were flashed then people were asked visual, acoustic, and questions of meaning.
            1. The results revealed that semantic encoding was most effective, then acoustic, and lastly visual encoding.
            2. These studies show how effective it is to rephrase things in our own words when trying to memorize them.
            3. They also show that when learning new material it's (a) important to rehearse or repeat it and (b) it's important to make it meaningful to you in some way.
    3. Visual encoding involves **imagery**. We can much more easily remember concrete things or words, like "dog", "truck", or "flower" than abstract words like "honor", "wrath", or "clever."
        1. The "good times" of our memories may be due to what's called "**rosy retrospection**." This is where the boring memories fade away and the nice images remain. For instance, on a trip to New York City, we forget the long wait in the airport but remember the scene atop the Empire State Building.
        2. **Mnemonic devices** are tricks that help memory and are often visually based.
            1. For example, the peg-word system assigns a visual image to a number, like one-bun, two-shoe, three-tree, etc. By pairing another word to the peg-word, a list can be recalled in order.
    4. Chunking is memorizing things in small groups, rather than alone or in one large group. This is why we write and think of phone numbers as 555-867-5309. We remember 555, then 867, and 5309.
        1. **Chunking** is often used as a mnemonic device. For instance Roy G. Biv stands for red, orange, yellow, green, blue, indigo, violet.
    5. **Hierarchies** are organized structures. You usually see these as flow-charts that analyze an organization (like a government) or a process.
        1. Hierarchies help us to organize and thus to remember info. The human brain likes order – hierarchies help us get that.

3. Storage: retaining information
    1. Sensory memory is like a lightning flash of what you see (or hear, etc.). How much of this do we remember?
        1. George Sperling flashed a 3 by 3 grid of letters to people and asked how many letters they remembered (about half). But, if prompted just after the flash to remember a certain row, they remembered them almost perfectly.
        2. This illustrated **iconic memory** which says that for a brief moment the image remains "burnt" in our eye. In Sperling's experiment, all 9 letters were "visible" for a short time. That's why a row could be named.
        3. For sound, we also have a very similar **echoic memory** where sound is very briefly stored.
    2. **Working** or **short-term memory** is the temporary holding place for information that we're using at the current time. For instance, if someone tells us a phone number, we can stick it in our head long enough to dial, then we forget it.
        1. Short-term memory lasts only a few seconds. In one study, after a 3 second delay, people forgot 3-consonant groups half the time. They forgot them almost completely after 12 seconds.
        2. Short-term memory can hold only about 7 bits of information.
    3. Long-term memory appears to be limitless.
        1. There are extreme examples of this, like people remembering and reciting pi to ridiculous levels.
        2. The biological storage process is complex.
            1. Memories appear to be stored throughout the brain (not in one place).
            2. Researchers have studied the synapses of sea slugs called Aplysia. It's nerve cells are very large and accessible.
                1. The sea slugs' synapses changed. Eventually it needed less of a stimulus to make the neuron "fire." This is called **long-term potentiation** or **(LTP)**. In other words, the threshold needed to achieve action potential is lowered due to LTP.

3. The protein "**CREB**" is an off/on switch for genes. A drug or supplement of CREB may one day help the synapses that help memory.
4. Increasing **glutamate**, a neurotransmitter, may also increase LTP and memory.
5. An electric current or a jolt to the head won't affect long-term memories, but can wipe out short-term memories. A boxer who gets knocked out often doesn't remember the hit that brought him down.

4. Strong emotion or severe stress can heavily influence memories.
    1. Emotional news, like hearing of a loved-one's death, or stressful situations, like an oncoming tornado "burn" themselves into our memories. These memories are very accurate.
    2. These memories are "written" into our memories due to action by the amygdala and to hormones released at the time.
    3. **Flashbulb memories** occur at times of crisis, such as the events of 9/11, 2001. Our brain's take a "snapshot" when something like that happens. These memories also prove to be very accurate.
5. **Amnesia** is the inability to form new memories.
    1. The famous patient known as "H. M." had part of his brain removed. He retained old memories, but could not retain new ones.
6. There appears to be two types of memory systems…
    1. **Explicit memory** – Consciously recalled memories. AKA **declarative memory**.
        1. These are things like facts or experiences that you can call up.
    2. **Implicit memory** – Memory without conscious recall. AKA **nondeclarative memory** or **procedural memory**.
        1. This can be either skills (like riding a bike) or classical conditioning. The person may know how to skateboard, but wouldn't be able to explain (or declare) that they know it.
    3. Two parts of the brain play a special role in memory…
        1. The hippocampus (in the temporal lobe) seems important in writing new memories.
            1. Damage to the hippocampus hurts memories. Extra activity in it during sleep seems to help people remember things later on.
            2. The hippocampus is more of a temporary site for memories.
        2. The cerebellum is important for storing implicit memories from classical conditioning.
    4. The dual implicit/explicit memory systems apply to infants as well. Things infants learn may well stretch into the future, but we have no explicit memories of learning them.

4. **Retrieval**: getting information out
    1. Key terms in retrieval…
        1. **Recall** is the ability to call up stored memories. It's like a fill-in-the-blank test.
        2. **Recognition** is identifying something already learned. It's like pinpointing a correct definition on a multiple choice test.
        3. **Relearning** is a measurement of time saved when learning something a second time. Learning something a second time comes faster and easier.
    2. **Retrieval cues** help us to pull information out of our memories.
        1. Mnemonic devices serve as retrieval cues. Examples are ROY G. BIV and peg-words.
        2. Sometimes **priming** cues us to remember things. Priming gives us hints to unlock our memories, and could be nothing more than a key word to open the door to our memories.
    3. Context effects refer to the fact that we remember things in the context or setting in which they're normal. It's like knowing a person by name, then seeing them somewhere unexpected and not being able to recognize them.
        1. The phenomena of **déjà vu** can be triggered by reentering a similar situation. Rather than actually having been in a situation before, certain similar memories may be similar enough to make us believe we've been there before.
    4. Moods and memories also cue us to remember certain things. If we re-live a certain mood or memory, we're more likely to remember a certain memory that was stamped into our brains at that time.
        1. Our memories are said to be **mood-congruent**. This means that that when in a certain mood, it's easier to recall memories that fit that mood. For instance, when in a depressed mood, for whatever reason, it's easier to recall other depressing memories.

5. Forgetting
    1. Memory can be stunningly accurate, like people who remember every detail of every day of their lives, or stupidly bad, like forgetting a person's name who was introduced to you 2 seconds earlier.
    2. Daniel Schacter has identified "7 sins of memory"…
        1. Forgetting:
            1. Absent-mindedness – our minds are elsewhere.
            2. Transience – time decays memories.
            3. Blocking – we have it on the tip of our tongue, but can't get it.
        2. Distortion:
            1. Misattribution – our memories "cross wires" as to who said it or if it was a dream.
            2. Suggestibility – our memories become susceptible to suggestion by others.
            3. Bias – our current feelings/beliefs can influence memories.
        3. Intrusion:

1. Persistence – certain memories, usually bad, won't go away.

6. Encoding failure
    1. Most of what we sense, we don't notice. And, much of what we notice we don't encode (thus don't remember it).
    2. As we get older, our ability to encode declines.
    3. An example of sensing much but encoding less is seen in the penny. Most people incorrectly identify a real penny if its components are switched around.
7. Storage decay
    1. Once encoded, the question then is, "How quickly do we forget?"
    2. **Hermann Ebbinghaus** graphed his forgetting of nonsense syllables. His results showed the **forgetting curve**.
        1. At first, we forget very much very fast.
        2. Then, forgetting diminishes, then finally levels off.
8. Retrieval failure
    1. Sometimes, info is "on the tip of our tongues." It hasn't been forgotten, it's in memory, but we can't get it out. There's a retrieval failure.
    2. **Interference** can hurt retrieval. Its when something similar gets in the way of trying to remember something. For instance, it's hard to remember a phone number if other phone numbers are told to you at that time.
        1. **Proactive interference** (AKA "forward acting interference") takes place when something you've previously learned gets in the way of learning something new.
            1. For example, learning letters in Italian may be tricky if you'd first learned letters in Spanish (they're similar).
        2. **Retroactive inference** (AKA "backward-acting interference") takes place when new info makes it hard to remember old info.
            1. For example, a computer programmer might learn a new programming language. Then, he may have trouble reverting back to the old language that he once knew well.
            2. Two researchers, John Jenkins and Karl Dallenbach, studied this in 1924.
                1. They had people study nonsense syllables then tried to recall them 8 hours later. One group stayed awake, the other group slept.
                2. The two groups' forgetting curves showed that the sleeping group remembered things much better.
                3. The idea was that the awake group experienced more sensations which interfered with the retrieval. The sleeping group did not have that interference.
        3. Notably, sometimes knowing something similar can help. Knowing a similar language can sometimes help you learn another. This is called **positive transfer**.
    3. Our memories are pretty fluid. That is to say, we tend to unknowingly revise them.
        1. As to why we do this, **Sigmund Freud** would've said we do this as a defense-mechanism. He felt we "repress" painful memories to protect our self-concepts and reduce anxiety.
        2. In Freud's world, these memories are repressed, but not forgotten. They'll one day surface if cued the right way.
            1. An example was a woman afraid of running water. She didn't understand her fear until her aunt said, "I have never told." As a girl the woman had run off, gotten trapped under a waterfall, and was saved by the aunt who promised to never tell.
            2. Freud's ideas are rich throughout psychology. But, modern psychologists tend to think that he was wrong. Sadly, painful memories usually last.
9. Misinformation and imagination effects
    1. Oftentimes, we weave memories from things we remember—we tend to fill-in-the-blanks. This fact means that our memories are often inaccurate.
    2. Studies of eyewitnesses consistently reveal that eyewitness memory is a rather fluid thing. Memories can be very different depending on cues such as how the questions about the incident are asked.
        1. The **misinformation effect** tricks us. This occurs when we're given a bit of wrong information, we often incorrectly remember things. Often, it's hard to tell what really happened and what we created.
        2. "Imagination inflation" occurs when we repeatedly *imagine* something that happened, then remember it as though it actually did.
10. Source amnesia
    1. **Source amnesia** (AKA "source misattribution") occurs when we either can't or wrongly label the source of a memory. The memory is there, but we're not sure where it came from.
        1. Sometimes it's hard to tell if a memory was real or if it was a dream.
11. Discerning true and false memories
    1. Memories, both real and invented, seem real. So, by going by gut only it's hard to tell which is real and which is made-up.
    2. Memories are influenced by the way we interpret them.
        1. In a study, researchers showed a face that was either happy or angry. The subjects were asked to interpret one of the emotions ("Why is she happy?" or, "Why is she angry?").
        2. Later, a slider morphed the picture from happy to angry. Those who explained the angry face stopped the slider at a much "angrier" level than those that saw the happy face.

3. Eyewitness testimony is frequently wrong. 79% of convicts who were proven innocent by DNA testing had been jailed largely due to eyewitness testimony.
    1. This field (eyewitness memory and the fabrication/unreliability or memories) is pioneered by Elizabeth Loftus.
    2. Police officers take this to heart when interviewing witnesses. They let the eyewitness tell everything without much interruption. Then they ask "cognitive interview techniques" to cue memories.
4. As we grow older, we tend to think our opinions when young were much like they currently are (they usually change).

12. Children's eyewitness recall
    1. Children's memories seem even more far-fetched.
        1. In a study to gauge memories for child-abuse cases, children were shown anatomically-correct dolls and asked, "Where did the doctor touch you?" Although none were touched there, 55% pointed to the genitals or anal area.
        2. Most preschool children would report false events when using suggestive interviewing techniques.
    2. Children's memories can be reliable when asked neutrally and without interaction with adults involved in the memory.
13. Repressed or constructed memories of abuse?
    1. Therapists go into murky waters when trying to dig up supposed lost child-abuse memories. Using techniques like hypnosis, drugs, and "guided imagery", they often create the memories they're trying to discover.
        1. On one hand, the therapists may be trying to correctly get to the bottom of a bad deed.
        2. On the other hand, this can lead to innocent people being wrongly accused.
    2. Several psychological groups use the following guidelines on this topic:
        1. Sexual abuse happens. It's too common.
        2. Injustice happens. Sometimes, the guilty walk free and the innocent are charged.
        3. Forgetting happens. The person may simply have been too young to remember.
        4. Recovered memories are common. When cued, it's common to dig up old memories. But, memories that surface on their own are more reliable than cued ones.
        5. Memories of events before age 3 are unreliable.
        6. Memories recovered while under hypnosis or drugs are very unreliable.
        7. Memories, real or false, can be emotionally upsetting.
14. Improving memory
    1. There are psychologically-proven strategies to improve your memory. They are…
        1. Study repeatedly. It's best to space out study time. Speeding over material is of little or no value. Like the tortoise who beats the hare, "Slow and steady wins the race."
        2. Make the material meaningful. It's very effective if you can tie whatever you're studying to you personally. Take notes in your own words.
        3. Activate retrieval cues. Try to recreate the mood and situation you were in when you studied it.
        4. Use mnemonic devices.
        5. Sleep more.
        6. Test yourself. This rehearsal helps you learn and it shows what you need to study more.

7B: Thinking, problem solving, and Language

1. Introduction
    1. Humans can somehow be amazingly brilliant, yet amazingly stupid. We're both rational and irrational.
    2. Thinking is also known as cognition. Cognitive psychologists study thinking or mental processes.
2. Concepts
    1. **Concepts** are simplified mental groupings of similar objects, events, ideas, and people. A concept deal's less with the specific than with the underlying parts of whatever you're talking about.
    2. On purpose or not, we organize concepts into hierarchies. We like order.
    3. We create **prototypes** which are ideal examples that sum up the concept. A "bicycle prototype" brings up a picture of a typical bike. If a new bike is introduced that's radically different in design, it throws us for a while because it doesn't fit.
        1. A face-recognition study found that people tend to place a person's ethnicity into their "ethnic prototypes."
3. Solving problems
    1. There are different methods to problem-solving…
        1. The most basic technique is simply **trial-and-error**. It might work but it is very random and usually takes lots of time.
        2. An **algorithm** is where you go through step-by-step procedures and are guaranteed to find the correct answer. This will work, but also often takes lots of time. For example, suppose you were given the

scrambled letters YOBS and asked to unscramble them into a word. You could start with the Y and write down each letter afterwards. Then move to the O, B, etc. You'd get the answer eventually.

3. The method called **heuristics** is essentially where you "use your brain." It depends on the problem as to how it works, but heuristics usually gets you to the answer quicker. In the example above, you might guess that few words start with Y. Therefore you'll start with another letter, say the B. A vowel would likely follow, giving you BO. With a Y and S left, the answer is pretty obvious.
    1. The main problem with heuristics is that sometimes you can be fooled. What's worked before may trick you at times.
4. In **insight learning**, the answer comes all-at-once. It happens when you're stuck, but then for whatever reason, the entire answer just comes to you.
    1. When this "light bulb moment" occurs, fMRI or EEG brain scans show a spot in the right temporal bulb light up.

2. **Creativity** is the ability to create ideas that are novel and valuable.
    1. Creativity and intelligence are not necessarily the same. People who score high on intelligence (IQ) tests are not always creative, and vice versa.
        1. IQ tests measure a single correct answer, this is **convergent thinking**.
        2. Creativity tests measure multiple answers, this is **divergent thinking**.
    2. Five parts to creativity have been identified, they are:
        1. Expertise – To be creative, people must first know something, or lots of things, from which to build. # Imaginative thinking skills – Creative folks think of things in new ways.
        2. A venturesome personality – Creative folks don't follow the crowd.
        3. Intrinsic motivation – Creative folks move forward for its own sake, not money, or fame, etc.
        4. A creative environment.
    3. Creativity has its obstacles.
        1. **Confirmation bias** is the tendency to seek out evidence that confirms our findings more eagerly than seeking evidence that refutes (or argues against) our findings. Thus, we're more likely to think we're right because the evidence we've found tends to support us.
        2. **Fixation** is being unable to see a problem from a fresh perspective. While thinking on a problem, we can get stuck in our thinking. It often helps to take a time-out, clear our heads, then come back to it in a different state-of-mind.
            1. The concept mental set influences how we think. **Mental set** is our tendency to try to solve a problem in a manner that has worked in the past. This can be helpful to solve similar problems, but it can be hurtful when we think a problem is similar, but really isn't.
            2. The idea of **functional fixedness** can stop us. It's where we think of things as only having their normal function. For example, we may feel we need a butter knife to cut the butter, but a fork would do just the same.

4. Making decisions and forming judgments
    1. We usually make decisions based on intuition, our gut-feelings. This is using heuristics that we've developed over our lifetimes. Normally, this works well. Sometimes, this gets the wrong answer.
        1. **Representativeness heuristic** is the probability of how well something fits a prototype. Sometimes our pre-conceived prototype can throw us off. This has to do with numbers (it's a probability), not simply what we expect.
        2. **Availability heuristic** says that we make our evaluations based partly on the ease with which we get the information on which we make them. In other words, if we easily gain info on something, we're more likely to lean that way. However, if contrary info is tough to gather, we often don't lean that way. Simply put, we make lazy judgments.
    2. **Overconfidence** can hurt our judgments too.
        1. Overconfidence occurs when we over-estimate our knowledge and abilities. It's aided by intuitive heuristics (gut feelings), our tendency to accept evidence that confirms our beliefs and reject evidence that disputes them, and our tendency to explain away our shortcomings.
            1. Overconfidence happens to politicians and to students and to everyone.
        2. Despite stumbling, people who are overconfident often do better than others.
    3. **Belief perseverance** is holding to one's line of thinking despite overwhelming evidence to the contrary. Simply put, it's being set in your ways, or even simpler, it's stubbornness.
        1. To combat this phenomenon, a person should imagine that the evidence was the opposite. This tends to soften a person's old thinking.
    4. **Intuition** plays a powerful role in how we think. It's our irrational, gut-feeling. It's making a decision without any evidence or support for the decision, but by simply saying, "I had a feeling."
        1. Intuition can often get us into trouble – decisions made without thinking usually do.
        2. Intuition can also be right. Sometimes, there actually is a reason that we feel a certain way. Over time, we do learn things and they do lean us toward certain decisions and away from others.
            1. It seems that when facing a decision, taking a time-out and taking your time is the best approach.

2. True intuition is a fast, automatic, habitual decision. You just know it, you're not sure how or why you know it, you just know it.

5. **Framing** is the way in which something is presented. It has a powerful impact.
    1. Surveys easily illustrate framing. If a medical treatment has a 10% chance of killing a person, it's perceived as being a poor remedy. If it has a 90% success rate, it's perceived as being effective. (It's the same thing, only the perception differs due to the framing.)
    2. To "make it personal," use numbers like "1 person out of 100." To downplay something, use less-personal percentages, like "1%."
    3. This is the same as "wording." The phrase "aid to the needy" gets a better response than "welfare" and certainly a better response than "giving a handout."

5. Language structure
    1. Introduction
        1. Language consists of spoken, written, and signed words. Language appears to be so close to thinking that it might actually be thinking.
            1. It's amazing to think of it this way, but people can transfer thoughts through the air between us – when we speak, our voices travel the airways, enter another's ears, and into their brains.
        2. This ability, perhaps above all others, helps separate us from the animals.
    2. **Phonemes** are basic sounds. English has 26 letters, but 40 phonemes (40 sounds).
        1. In English, consonants usually are more important than vowels.
        2. People often have difficulty making sounds of languages that they didn't grow up speaking.
    3. Phonemes are just sounds. **Morphemes** are the smallest units of language that *have meaning*.
        1. In some cases a phonemes is a morpheme, like "I" or "cat."
        2. Usually, morphemes are made up of two or more phonemes.
    4. **Grammar** is a system of rules for a language.
        1. **Semantics** is made of the rules that give us meaning from morphemes, words, and sentences. The focus here is on the meaning of the words.
        2. **Syntax** is made of the rules we use to assemble sentences. The focus here is on how we assemble the words. For example, an English syntax rule is the adjective comes before the noun – white house. Spanish reverses it to *casa blanca*.
        3. Semantics and syntax interplay with each other and can alter each other. The way the words are assembled affects the meaning.
6. Language influences thinking
    1. Our language strongly influence the way we think. This is called **linguistic determinism**.
    2. This is most apparent in very different languages, like English and Japanese. Bilingual people reveal typical western or eastern traits when describing themselves in those languages.
    3. Examples of this…
        1. Hopi Indians' language has no verbs in past tense—they struggle thinking about the past.
        2. A Brazilian tribe has no numbers above 2—they struggle replicating a pile of 7 nuts.
        3. Words influence how we perceive colors—what we call it influences how we see it.
    4. It's hard to think about abstract ideas (respect, freedom) without language. It might even be impossible.
7. Thinking in images
    1. We can also precede ideas in words with images.
    2. Watching an activity or envisioning an activity in one's mind activates the same part of the brain as if the person were actually doing the activity.
        1. The technique of visioning is often used effectively by athletes—they envision the perfect motions in their mind.
        2. This works in other things too, if we envision ourselves going through the steps to achieve the goal.

Unit 8: Motivation and Emotion

8A: Motivation

1. Introduction
    1. People can receive **motivation** in many ways. Motivation is the need or desire that propels a behavior toward a goal.
    2. For example, after being trapped while rock-climbing, Aron Ralston was motivated to cut off his arm in order to live.
    3. There are four main ways psychologists approach motivation…
        1. *Instinct theory* (today known as the *evolutionary perspective*) – focuses on how genetics dictates behavior.
        2. *Drive-reduction theory* – focuses on how our inner and external motivations interact.
        3. *Arousal theory* – focuses on finding the right level of stimulation.
        4. *Hierarchy of needs* – Abraham Maslow's idea that we satisfy the most basic needs first then move up.
2. A hierarchy of motives
    1. The **instinct/evolutionary theory** gained popularity about a hundred years ago, when Charles Darwin's ideas were fresh. It tried to explain human behavior in terms of instincts. There was, supposedly, an instinct for everything.
    2. An **instinct** is a complex behavior within a species that is unlearned. For example, a salmon instinctively returns to its birthplace to spawn; a bird instinctively makes a nest in its own specie's style.
    3. People also have instincts (though they may be less obvious than a bird building a nest).
3. Drives and incentives
    1. After the instinct and evolutionary theory fell out of fashion, the **drive-reduction theory** replaced it. This theory says that physical drives make an aroused state and thus moves us to satisfy that drive.
        1. For instance, the physical drive/need for water creates thirst and the desire to satisfy that thirst by drinking water.
    2. The theory also says that, as well as being pulled by internal factors, we're pushed by external factors.
        1. For instance, we may not be physically hungry, but if we smell some hot cookies and see them, we want to eat them!
    3. This is nature-nurture in action—nature gives us physical hunger and urges us to eat, nurture sells us yummy-looking desserts.
4. Optimum arousal
    1. The **arousal theory** says we do more than react only to our bodies and the environment. We are curious and have an inner drive to "go further."
        1. For example, the young man who cut off his arm to live. Or the first man to climb Mt. Everest simply, "Because it is there."
    2. From toddlers to adults, after satisfying basic needs, we crave more information and more learning.
5. A hierarchy of motives
    1. This theory says we satisfy basic needs first, then move on to achieve great things.
        1. For instance, air is a very basic need. We rarely think of it, but if your air supply was somehow cut off, you'd be very motivated to get it back. The same for water and for food.
    2. **Abraham Maslow** identified a **hierarchy of needs**. It's usually shown as a pyramid. He says we start at the bottom of the pyramid, satisfy those basic needs, then move up. Maslow's needs are (just FYI, this list is upside down as compared to the pyramid)…
        1. *Physiological needs* – hunger and thirst
        2. *Safety needs* – to feel the world is organized and predictable
        3. *Belongingness and love needs* – the need to love and be loved, to be accepted and avoid loneliness
        4. *Esteem needs* – we need self-esteem, achievement, competence, independence, recognition, respect from others
        5. *Self-actualization needs* – to live up to our full potential
        6. *Self-transcendence needs* – to find meaning beyond ourselves
6. The physiology of hunger
    1. The need for food and the hunger it creates forces us to drastic action. For example, in Nazi concentration camps, family members fought over food. When partially-starved, we react a couple of ways…
        1. Our bodies adjust by slowing down and conserving energy.
        2. Our minds adjust by making food and eating the #1 thing on our mind all the time. At this time, little else matters.
    2. A. L. Washburn studied how we feel hunger. He swallowed a balloon, inflated it, and recorded whenever he felt hunger. His conclusion was that stomach contractions cause the feeling of hunger.
        1. Studies on rats showed they still had hunger even without stomachs.
    3. Body chemistry and the brain play a part in hunger as well.
    4. People and animals also have a built-in balance system – we innately try to maintain the balance between energy and weight.

5. Our blood sugar glucose level is monitored and managed by the brain and insulin. This affects our storage of fat and feelings of hunger.
6. The hypothalamus is key to managing feelings of hunger.
    1. Animals have had their hypothalamuses electrically stimulated – they get hungry.
    2. The hypothalamus gives out orexin, a hormone that triggers hunger.
    3. The lower mid-hypothalamus does the opposite. Stimulating it will decrease hunger. Damage to this area can lead to excessive eating and weight-gain.
7. There are many hormones at work dealing with hunger…
    1. Insulin – regulates blood sugar level.
    2. Leptin – causes brain to alter metabolism.
    3. Orexin – hunger hormone from hypothalamus.
    4. Ghrelin – "I'm empty" hormone from stomach.
    5. Obestatin – "I'm full" hormone from stomach.
    6. PYY – "I'm not hungry" hormone from intestines.
8. Animals have a **set point** which is a stable weight. Set point is influenced by heredity and body type.
9. Our weight is influenced by (1) how much we eat, (2) how active we are, and (3) **basal metabolic rate**. This is the rate that we burn energy when at rest.
    1. When semi-starved, people will see their basal metabolic rate drop by about a quarter. And thus, their weight drops then stabilizes at about 75% of their normal weight.
10. The idea of a biologically pre-established set point has been questioned recently. Now the movement is toward a "settling point" where the body settles. This is because environmental factors, like all-you-can-eat buffets tend to see us over-eat.

7. The psychology of hunger
    1. There's more to eating than just hunger.
        1. Two researchers studied people who could not remember beyond 20 minutes. Since they couldn't remember eating a full meal, say 30 minutes ago, they ate another, and then another.
        2. We crave some foods depending on our mood or what we're doing.
        3. We crave some foods naturally, like sweets and salty foods.
    2. Different cultures yield different cravings too. People across the world eat some crazy, and gross, things when viewed from a different culture.
        1. Hotter cultures use more spices because food spoils easier there but spices help preserve it.
        2. People naturally are slow to try unusual foods, perhaps as a biological defense mechanism.
    3. The situation that we're in also matters.
        1. People eat more when together with others.
        2. Portion-size matters in a big way. People eat more when given bigger portions. And they eat more when given big plates and utensils.
    4. There are three main eating disorders…
        1. **Anorexia nervosa** – This usually starts as a weight-loss diet but turns into a monster. Even after losing about 15% below normal weight, a person with anorexia is often very thin yet still sees herself as fat, even though she may be extremely skinny.
            1. 3 out of 4 people with anorexia are female.
            2. ½ of anorexics use a "binge-purge" technique of eating-and-vomiting or the use of laxatives.
        2. **Bulimia nervosa** – This also often starts as a diet. Bulimia typically sees binging and purging where the person eats a lot, then pukes it up.
            1. Bulimia is usually seen in women in their late teens and early 20s.
            2. Depression is common, especially around binge time periods.
            3. A bulimic is often around her normal weight so identifying the disorder is difficult.
        3. A person who binges, but then does NOT purge, fast, or excessively exercise may have a **binge-eating disorder.**
        4. It seems that the family environment plays a big role in eating disorders.
            1. Summed up, kids in well-off families are in the high-risk category because they don't want to let themselves or others down.
            2. Basically, it's the Barbie complex – girls imagine trying to be Barbie and take drastic steps to try to attain Barbie.
        5. Other factors play a role in body image…
            1. Culture – Some cultures, like in Africa, see bigger women as healthier women. Western cultures tend to prefer skinny women.
            2. Gender – Women are much more critical of their bodies than are men. Western society dictates that women be attractive, men not so much.

8. Obesity and weight control
    1. Historically, adding fat has been a good thing. Whenever a person could eat sugary or fatty foods they did it. Fat was stored up for the lean years and a hefty person was seen as a healthy person.
        1. Obesity is growing very fast. "Wealthy" countries lead the fat-race: Australia, Canada, France, and the U.S. The U.S. has the highest rate of gaining weight.

2. Obesity brings several health risks including the risk of diabetes, high blood pressure, heart disease, gallstones, arthritis, types of cancer, and Alzheimer's for women.
    1. Summed up, obesity lowers a person's life expectancy.
3. Obesity also affects how others see you and how you see yourself.
    1. Obese people are seen as lazier, meaner and they make less money.
4. The physiology of obesity helps explain obesity.
    1. Fat cells are like balloons – they blow up to store energy/fat. But, they can also divide in two or tell nearby fat cells to divide and blow up. Once they divide, they can blow up, then shrink, but they never go away.
    2. So, once a person has become obese, then lost weight, the fat cells are still there, just smaller. This makes it very easy to gain the weight again.
    3. Once fat, it's tougher to burn it off because fat has a low metabolic rate. If you eat a lot then cut off the food, the body thinks it's being starved and slows metabolism.
5. Genetics plays a role too.
    1. People who sit still generally store more fat than those who fidget. "Fidgetiness" might be inherited.
    2. When trying to figure how much of a role genetics plays in anything, you go to twin and adoptions studies. Evidence of genetics role in obesity…
        1. Adopted siblings weights correlate with their biological parents, not adoptive parents.
        2. Identical twins raised separately have weights that correlate at +0.74 (that's pretty high).
        3. If a parent is obese, boys are 3 times as likely to become obese, girls 6 times.
6. What we eat and what we do also matters.
    1. A lack of sleep leads to gaining weight. Leptin declines (brain doesn't get the "fat report") and ghrelin increases (more appetite).
    2. If we're friends with an obese person, our chances of getting obese increase.
    3. The whole world is getting fatter, with Western nations leading.
        1. The types of food and increased TV watching are major culprits.
            1. We eat fast food cooked in oils and drink lots of sugar-laced soda.
            2. On average, every 2 hours more of TV per day meant a 23% obesity increase and 7% diabetes increase.
        2. Also, we do much less physical labor than in the old days. Old Order Amish folks, who do lots of work, have an obesity rate 1/7th of the national average.
7. Losing weight can be done, but keeping off the weight is the tough part.
    1. After losing weight, the fat cells are shrunk in size, but still there. And, with the body below its set point, it thinks it's being starved so (1) metabolism slows and (2) the person constantly thinks of food.
    2. A successful weight-loss strategy is to slowly, moderately, and realistically drop the weight. 10% loss in 6 months is a good time frame.
    3. Always, a successful weight loss consists of a healthy diet and exercise. There's really no secret here.

9. The physiology of sex
    1. Sexual arousal is a mix of internal and external stimuli.
    2. The "**sexual response cycle**" was studied by William Masters and Virginia Johnson in the 1960s. It has four stages:
        1. Excitement phase
        2. Plateau phase
        3. Orgasm – brain scans show no difference between men and women.
        4. Resolution phase – brings the body back to normal. Males enter a **refractory period** which is the "re-set time" or the time when he's incapable of orgasm.
    3. Hormones initiate sexual behavior.
        1. Women secrete **estrogen**, which peaks during ovulation.
        2. Men generate **testosterone**. Men's hormones are more stable. The situation that a man is in can increase testosterone.
            1. Removing testosterone usually means a loss of sex-drive.
10. The psychology of sex
    1. External stimuli affects sex-drive. In other words, what we see, hear, and the situation we're in can "get us in the mood."
        1. Viewing sexually explicit material can have negative effects—men can think the woman likes being raped or might view his spouse less favorably.
    2. Imagined stimuli affects sex-drive because the brain is the most powerful sex organ. Sexual fantasies are common (95% of men and women report it).
11. Adolescent sexuality
    1. Family values (or lack of values) and one's culture matters greatly in whether or not a teen has sex before marriage. They estimate that a decision to first have sex is 75% due to environmental factors.
    2. Teen pregnancy in the U.S. is high. Some reasons for this include…
        1. Less use of contraceptives due to ignorance. Many teens say they know about STI's but tests show they really don't. They also overestimate how much sex is really going on.
        2. Less talk about birth control. Being a touchy subject, contraception isn't discussed much with parents or partners.

3. Guilty feelings about having sex. Most teen girls say they regret having had sex.
4. Using alcohol. Alcohol is a **disinhibitor**—it makes you do things you normally would not do, like have sex.
5. Lessons from the media saying, "It's cool." TV, movies, the internet, etc. all point to sex. An hour of TV yields 15 suggestions to sex. The people are usually unmarried, uncommitted to one another, and unprotected. Studies show sex in the media leads to sex among teens.

3. **STI**'s are sexually transmitted infections.
    1. STI's hit young people hardest. 39.5% of girls 14 to 19 years old had STI's in one study.
    2. Condoms sometimes help, sometimes don't.
        1. Condoms don't help with skin-to-skin diseases.
        2. Condoms do help stop the HIV virus with an 80% effective rate; but this means they still have a 20% ineffective rate.
        3. Condoms help stop bacterial diseases.
    3. **Abstinence** (not having sex) is the only fail-safe way to prevent both pregnancy and STI's. Teens that wait to have sex usually show these traits…
        1. Higher intelligence.
        2. Religious activity.
        3. A father who is present and engaged.
        4. Volunteer somewhere.

12. Sexual orientation
    1. Sexual orientation is the consistent sexual attraction to the opposite sex (heterosexual) or the same sex (homosexual).
    2. Despite frequency in the movies and on TV, homosexuals are few in number. About 3 or 4% of men are homosexual; about 1 or 2% of women are homosexual.
13. The need to belong
    1. As Aristotle pointed out, we humans are "social animals." We like to be around other people.
    2. Being social has helped us survive over the years by aiding (1) hunting, (2) foraging, (3) safety, and (4) increasing the chance we reproduce.
        1. Also, having close family or friends to help us through hard times yields happier people.
    3. Likely above everything else, real, true, close relationships are what matter to people. This "need to belong" seems to far outweigh the need to be rich.
        1. When we feel and know we belong, our self-esteem soars.
        2. Conversely, feeling rejected yields low self-esteem.
    4. People like relationships to last and we seem to have a fear of being alone.
        1. After being separated from friends and family, we're rather diligent about communicating.
        2. "Homesickness" is common for a young person off to summer camp or to college.
    5. Ostracism (social exclusion) hurts.
        1. This is usually in the form of the "silent treatment", turning away, or simply being ignored.
        2. A person ostracized usually feels depression, tries to get accepted, then withdraws.
        3. In the brain, this social pain behaves similarly to real pain.
            1. Any pain gets our attention and calls for action.
            2. Action might be constructive like seeking new friends or it can be mean-spirited or even drastic.

8B: Emotion, Stress, and Health

1. Introduction
    1. One thing that makes us all human, other than our errors, is the emotions we feel.
    2. Emotions are complex.
        1. Think of hearing a "bogey-man" outside. The emotion of fear is made up of (1) physiology (heart pounding), (2) our behaviors (grabbing a baseball bat), and (3) our thoughts (imagining what all might happen).
        2. There are two debates on emotions…
            1. The first wonders which comes first, physiology or feeling? It asks, does the physiology arouse the emotions, or do the emotions arouse the physiology?
            2. The second wonders if thinking always comes before feeling? It asks, do I think about it and therefore create my feelings?
    3. There are 3 main theories on emotions…
        1. **James-Lange theory** – Henry James and Carl Lange built the James-Lange theory which says <u>our bodies react first, then we experience the emotional feeling</u>.
            1. For example, a baseball pitcher suddenly sees a batted ball screaming for his face. He reacts and catches the ball. Then he feels a rush of fear/surprise/emotion. Thinking and acting came before feeling.

2. **Cannon-Bard theory** – Walter Cannon and Philip Bard disagreed with this theory. They came up with the Cannon-Bard theory saying our bodies reaction and our emotional feeling occur at the same time.
3. **Two-factor theory** – Stanley Schacter and Jerome Singer came up with the two-factor theory saying emotions are made up of (1) physical arousal and (2) a cognitive label (we must be actually aware of the physical arousal).
    1. This one says that we feel our bodies react, we're aware of this reaction, then we feel the emotion associated with it.

2. Emotions and the autonomic nervous system
    1. Anyone who has experienced the death of a close loved-one or falling in love knows that the body and emotions work together.
    2. The **autonomic nervous system** (ANS) is our "auto-pilot nervous system" – it works on its own to protect us, such as when a dog attacks. The ANS alerts us to action then calms us when the crisis is over. The ANS has two main subdivisions…
        1. **Sympathetic division** – this "hypes us up" when there's a danger. It gets us ready to fight.
            1. Hormones are released (epinephrine AKA adrenaline, and norepenephrine).
            2. The liver shoots sugar into your blood.
            3. Respiration and pulse go up, digestion slows, blood moves to your muscles.
            4. Pupil dilate, perspiration starts to cool us.
        2. **Parasympathetic division** – this calms us down when the danger's over.
            1. The opposite of everything above takes place.
            2. But, with things already in the system, calming down is gradual.
    3. Arousal affects performance.
        1. If a task is easy, you perform better if arousal is high.
            1. For instance, a runner finds running easy (because it's been learned over and over). Having competition in a race would lead to a high state of arousal and force the runner to perform better and run faster.
        2. If a task is difficult, you perform better if arousal is low.
            1. For instance, taking the SAT is difficult. Being in a low state of arousal (being calm) leads to better performance but being in a high state of arousal (being nervous) leads to poor performance.

3. Physiological similarities among specific emotions
    1. When experiencing different emotions, there are no major physical differences shown by the body.
    2. Put another way, by simply reading the body, a researcher can't tell the difference between fear, anger, and sexual arousal.

4. Physiological differences among specific emotions
    1. Different emotions do yield some differences between emotions.
        1. In the body…
            1. Finger temperature and hormone secretions are different for fear and anger.
            2. Fear and joy perk different facial muscles
        2. In the brain the emotions show more differences…
            1. The amygdala reacts differently when responding to different emotions. The amygdala could be considered the "headquarters of emotion."
            2. EEG scans show that emotions "light up" different parts of the brain.
            3. Depression shows up more in the right frontal lobe, positive moods in the left frontal. This may be due to lots of dopamine receptors in the left lobe. Essentially, right is cranky, left is happy.
    2. This evidence, that the brain handles emotions differently, seems to support the James-Lange theory (the body acts, then our feelings react).
    3. The other two theories still stand though. How we think about what we physically feel still matters.
        1. Consider a lie-detector test. If our thoughts about our physical reactions did not matter, a lie-detector test would never fail. In reality, they're sometimes wrong.

5. Cognition and emotion
    1. What goes on in our head (cognition) can impact what we feel.
    2. Cognition can outline our emotions.
        1. If we're in a state of arousal (hyped up from exercise or adrenaline) we might get different emotions depending on how we label a situation.
            1. If we see the situation as joyful, we feel joy. If we see the situation as testy, we get testy.
        2. If we're in a state of arousal, we might react with aggression, like a soccer riot.
        3. These facts supports the **Two-factor theory** that says arousal + a label = emotions.
    3. Cognition can also come after emotion.
        1. Studies have shown that people can emotionally feel something to which they can't "put a finger on it" or label. We're fine-tuned to emotionally sensitive information.
        2. For instance, people were flashed pictures so fast they couldn't consciously see them. But, depending on the picture, responded accordingly to things like happy or frown faces.
        3. There are two pathways that sensory input takes when dealing with emotions, like fear…

1. The "high road" – sensory input (from say the eyes)→ thalamus→sensory cortex→prefrontal cortex→amygdala→creating a fear response. This is slower and we actually think about it. It's like the calm person who never shows any emotion and calmly reacts to situations.
2. The "low road" – sensory input (from say the eyes)→amygdala→fear response. This is super-fast. It usually involves fear or likes/dislikes. It's like the person who "wears his emotions on his sleeve" and reacts to any situation immediately.
3. Much of our emotions occur on auto-pilot, without us actually thinking about it or being conscious of it. But, making a conscious effort to switch to the "emotional high road" helps us get some control over our emotions.

6. Detecting emotion
    1. People also communicate without words. "Body language" speaks volumes.
        1. We're better at picking out danger, like the word "bomb" or an angry face.
    2. Facial muscles tell our emotions, usually involuntarily.
        1. Raising the inner part of your eyebrows reveals worry.
        2. Eyebrows raised and together shows fear.
        3. Tensed muscles under the eyes and raised cheeks show a genuine smile. A "for-the-camera" smile often doesn't have this.
    3. Studies have shown that we can usually decode these things pretty easily.
        1. The eyes and mouth are the most important for picking up the emotions.
        2. Extraverts' emotions are easier to read; introverts are better at reading them.
    4. We're not so good at detecting lies. The idea that "a person looks away when lying" may not hold up. People could detect lying only 54% of the time.
    5. Emails and text messages usually don't have any non-verbal clues to communication. Thus, we're judged only by our words and our meaning is sometimes misinterpreted. We may be "just kidding", but the person may not know that and therefore take it seriously.
7. Gender, emotion, and nonverbal behavior
    1. The notion of "women's intuition" just may be real. Women tend to be better at sensing emotional cues and identifying lies.
    2. Women seem to have more depth and complexity in sensing emotions; men tend to keep emotions pretty simple.
    3. Anger is an exception to the "women are more emotional than men" rule. Anger is a male-dominated emotion.
        1. In one experiment, a computer-generated gender-neutral face was given either an angry and a smiling face. People usually saw the angry face as a male, the smiling face as a female.
    4. Women see themselves as empathetic (they can imagine being in another's shoes).
        1. Objective measurements show the gap isn't as wide as women say.
        2. Still, women are much more likely to show their empathy and emotions. It's okay for a woman to show emotions, but the old saying "men don't cry" applies to males.
8. Culture and emotional expression
    1. Gestures have different meanings throughout the world. Examples…
        1. China – hand clapping means you're worried, sticking out your tongue means you're surprised.
        2. USA – "thumbs up" means "It's A-okay," but in Brazil it means "up yours."
    2. Facial expressions are pretty universal, regardless of one's culture. Paul Ekman led this research in the 1970s.
        1. Six basic facial expressions have been identified and are easily recognized. They are…
            1. Happiness
            2. Surprise
            3. Fear
            4. Sadness
            5. Anger
            6. Disgust
        2. These expressions apply to all age groups, including babies and even blind children who've never actually seen them. Babies also throw in an extra expression: interest – like they're saying, "Ooh, look at that cool thing!"
        3. Smiles are social expressions. Although we may be happy about something, we usually save our smiles for sharing with others.
        4. Western cultures that value individuality show more emotions than Eastern cultures that value the group.
9. The effects of facial expressions
    1. William James felt that if we act a certain way, like acting happy, we'll begin to feel happy. Research has shown that James may well have been right. A person's attitude really does matter.
        1. In studies, if people are told to make a certain facial emotion, they say they can feel the emotion they're masking. Faces show our feelings and they fuel our feelings.
    2. The **facial feedback effect** is the resulting feeling after making an emotional facial expression.
        1. One study had people hold a pen in between their teeth. Doing this activates smile-muscles. They reacted by saying cartoons were funnier. Holding the pen with your lips activates frowning muscles.
        2. In another study, Botox was given to depressed patients so they couldn't frown. 9 out of 10 were no longer depressed two months later.

3. Walking with your head down and shuffling your feet makes you feel down and out. Walking with long strides, arms swinging, eyes straight ahead makes you feel positive.

3. To increase empathy, let your face mimic the person you're with.

10. Fear
    1. Fear, real or perceived, is very powerful.
        1. We can become afraid of almost anything. It can be natural (heights) or it can be learned (creepy clowns). Naturally not afraid, monkeys learned to fear snakes.
    2. The amygdala is part of the limbic neural system and is important to feeling fear.
        1. The **amygdala** alerts us as if saying, "Hey! Watch out! Something bad is coming!"
        2. A person with a damaged amygdala is grossly unaware of obvious danger.
    3. Identical twins show similar fearfulness, even when raised separately. This supports the genetics that influence fear.
11. Anger
    1. Anger is a powerful emotion, perhaps the most powerful aside from love.
    2. In Western cultures that value the individual, "venting" one's anger is seen as a good thing because it "releases steam." In Eastern cultures that value the group, venting is a negative because it brings discord within the group.
        1. Westerners believe in **catharsis**. This idea says that we need to do something violent or extreme to kick in the "release valve," then we feel better. Studies show this usually fails. Showing anger tends to breed anger.
        2. There are two bits of advice to relieving anger…
            1. Wait. Just give it some time to settle.
            2. Don't dwell on it. This only lets the anger steep, like tea bags in water. Rather, deal with it in another manner. For instance, you might turn to exercising, engaging in a hobby, or talking to a friend.
        3. Additionally, **forgiveness** is powerful. Research shows that forgiving someone for doing you wrong is a very powerful remedy for ill feelings.
            1. Physiologically, one study showed that forgiveness lowered blood pressure, pulse, and facial tension.
            2. On the inside, there are no bounds as to how much forgiveness heals.
12. Happiness
    1. Happiness matters.
        1. People who are happy are more playful, creative, have better self-images, better relationships, and hopes for the future.
        2. They have better marriages and make more money.
    2. Also, it's worth noting that unhappy people also launch social reforms and write great literature (witness Ernest Hemingway).
    3. The **feel-good, do-good phenomenon** is very pervasive among people. It says that when we're happy, we're inclined to help others.
    4. A person's **well-being** is his or her perceived happiness or satisfaction with life.
    5. David Watson studied happiness hourly. He determined that after waking, we quickly move into a good mood. It gets slightly better until 8 hours later then begins to slide. After being up 13 or 14 hours, it drops fast.
        1. The bottom line, we're happiest during the daytime hours, then saddest during the evening.
    6. People have a strong ability to adapt, move on, and live. Even though things sometimes seem hopeless, there's something powerful in us that moves us on. Our will to live and fight is stronger and longer-lasting than our negative emotions. We often underestimate this.
        1. It's normal to have day-to-day up-and-down mood fluctuations.
        2. Studies have shown that emotions tend to be short-lived. The lesson: no matter how bad you feel, don't give up because it will pass.
    7. The question is, "Can money buy happiness?"
        1. Beginning in the 1960s, college students were asked to rate the goals of "developing a meaningful life philosophy" and "being very well-off financially."
            1. In the 60s, the "life philosophy" rated very high.
            2. In 1977, the two goals were equal.
            3. After 1977, "well-off financially" was rated high.
        2. Wealth does tend to lead to happiness over basic needs. Wealthy nations have healthier people – they don't have to deal with the stress of things like getting food.
            1. But, the economics *law of diminishing marginal utility* applies here. It says each additional bit of something (in this case, money) gives less usefulness.
            2. In other words, once you have enough money for the basics, adding money doesn't bring you much more happiness. For a billionaire, an extra $1,000/year means nothing. To a person on welfare, it means a lot.
        3. It also seems that instead of money breeding happiness, happiness breeds more money.
        4. Beyond the basic needs, money cannot buy happiness.
            1. From 1957 to 2008, average incomes went from $10,000 to over $28,000 per year (in year 2000 dollars). But, ratings of personal happiness were essentially flat.
            2. People who seek money for power and prestige usually have the lowest happiness.

3. People who focus on relationships, growth, and community usually have the highest happiness.

8. Two principles that try to explain why, for non-poor people, gaining more money gives only a temporary boost in happiness…
    1. The **adaptation-level phenomenon** says we judge things relative to a neutral level, which is defined by our past experience. Everything is relative.
        1. With music, we have a neutral volume level in our minds based on past listening experience. If we hear a song, we compare it to our neutral level then decide if it is loud or quiet.
        2. The same is true with income. We have a neutral income level based on our income of past years. A raise of $100 a year to an adult would be almost nothing; to a child, it would make him/her feel like a king.
    2. Our happiness also depends in part on how we compare ourselves to others.
        1. If we think we're not "keeping up with the Joneses," we're not happy. Conversely, if we see the Joneses as worse-off than us, we feel better.
        2. The **relative deprivation** concept says we become disappointed because we think others are doing better than us.
9. Tips on how to be happy…
    1. Realize money can't buy happiness.
    2. Manage time.
    3. Act happy.
    4. Use your skills at work and play.
    5. Exercise.
    6. Get your sleep.
    7. Make close relationships matter.
    8. Help others.
    9. Be thankful for what you have.
    10. Find faith and religion.

13. Stress and illness
    1. **Stress** is the process by which we perceive and respond to events that we feel are threatening or challenging.
        1. A **stressor** is an event that threatens or challenges us, like a job performance evaluation.
        2. Our physical and emotional responses to the stressors are our **stress reaction**.
        3. How we view an event can determine whether it's a stressor. To some people, a job interview is a great opportunity. To others, it's very intimidating.
    2. The time stress lasts matters.
        1. Short-lived stress can be a good thing. It jolts our immune systems and gets us going to do great things. For instance, an athlete might prep before a big game or a person might bounce back from losing a job to move on to a better one.
        2. Long-term stress hurts us, not only emotionally, but it can physically harm us.
    3. We have a built-in "stress response system." Researcher Walter Cannon was the pioneer in this field.
        1. The sympathetic nervous system kicks in when stressed. It releases "stress hormones" of epinephrine (AKA adrenaline) and norepinephrine and hypes us up for a fight. This is the **fight-or-flight** stage where we decide to either fight the threat or take off running.
        2. Another level of the stress response system sees our adrenal glands send out the hormone **cortisol**. Whereas epinephrine takes effect fast, cortisol is for the long-haul.
        3. There are alternatives to fight-or-flight…
            1. Some people might **withdraw** from the stress—they may "hole themselves up" to conserve energy or become paralyzed with inactivity.
            2. Another technique is called **tend and befriend**. This is where, in times of crisis, a person helps others and seeks help from them. This is more common with women.
            3. Men tend to **socially withdraw**, such as turning to alcohol or aggression. Women do just the opposite, they tend to join together with others.
    4. Hans Seyle developed the **general adaptation syndrome (GAS)**. He said our responses to stress are amazingly uniform. He identified the following phases…
        1. Phase 1 – **alarm reaction** – This is the "Oh! Wow!" moment when you're shocked at something. Your sympathetic nervous system kicks in. Pulse races, blood goes to your muscles, you get a faint feeling of shock, and you're ready to fight.
        2. Phase 2 – **resistance** – This is where you deal with the situation. It sees your temperature, blood pressure, and respiration stay high. Hormones are released.
        3. Phase 3 – **exhaustion** – This is when your body's "stress resources" are running low or gone. You're susceptible to illness and perhaps collapsing or death.
            1. The bottom line with Seyle's research is that (1) we tend to deal with stress in a predictable pattern and (2) prolonged stress takes a physical toll on our bodies.
    5. Certain life events are more stressful than others.
        1. Catastrophes are very stressful. They cause increases in heart attacks, sleepless nights, and suicide.
        2. Significant life changes are very stressful. This includes things like the death of a loved one, change in job, moving, marriage, or divorce.

3. Daily hassles cause stress. Little day-to-day things can add up to stress you out.
    1. Poor countries have high hypertension rates because they worry about making ends meet.
    2. Wealthy countries have higher stress amongst people who are dissatisfied with their lives.

14. Stress and the heart
    1. High blood pressure is one factor that increases the risk of **coronary heart disease** – the closing of the blood vessels that nourish the heart. This is North America's #1 cause of death.
        1. Smoking, obesity, high fat diet, and high cholesterol add to the risk.
        2. But, stress also adds to the risk. This was shown in a study, by Friedman and Rosenman, of tax preparers who scrambled to finish tax returns on time and saw their risk go up due to stress.
    2. Friedman and Rosenman also identified two groups…
        1. **Type A personalities** are competitive, driven, impatient, time-conscious, motivated, verbally aggressive, and easily angered.
        2. Type B personalities are easygoing people.
        3. Type B folks are much less prone to have a heart attack than Type A people. The #1 factor seemed to be the Type A person's anger.
        4. Other factors matter…
            1. People who were pessimistic were at a greater risk for heart disease.
            2. People who were depressed were at a greater risk for heart disease.

15. Stress and susceptibility to disease
    1. The term **psychosomatic** describes a physical symptom that has a psychological cause. But, the term became known as a person "faking it" or the symptom is "just in their head but it's not real." Sometimes this is true, sometimes what's in our head does affect us physically. So, the term is not used much anymore.
    2. **Psychophysiological illness** is used now. This implies that what's in our head can actually cause physical symptoms, like hypertension and headaches.
    3. **Psychoneuroimmunology (PNI)** now describes how what's going on in our head impacts our nervous and endocrine systems and altogether affects our immune system.
        1. Our immune system fights diseases. The main "warrior" is our **lymphocytes** or white blood cells that fight bacteria and viruses.
        2. Under stress, our brains release stress-fighting hormones which suppress our lymphocytes. Thus, the bottom line: stress lowers our immune system and makes us more susceptible to disease.
    4. AIDS is the 4th killer in the world and the top killer in Africa. AIDS is immunodeficiency (lowered immune system).
        1. Stress adds to the power of AIDS by weakening the immune system further.
        2. Some people say stress should be lowered to in turn lower its affect on AIDS patients.
        3. Others say it's best to *simply not get AIDS in the first place* by following the ABC's…
            1. Abstinence.
            2. Being faithful.
            3. Condom use.
    5. Stress speeds up cancer.
        1. Studies showed stressed rats were more prone to cancer than care-free rats.
        2. People under stress have higher rates of cancer.
        3. Stress doesn't *create* cancer, but it may make the body more susceptible to it.
    6. Lastly, as an overall theme of psychology, stress reminds us how the mind and the body interact.

Unit 9: Development

1. Introduction
    1. Developmental psychology is interested in how people grow and change—physically, cognitively, and socially.
    2. There are 3 major themes in human development research…
        1. Nature and nurture - asks how human development is influenced by genetics vs. our experiences.
        2. Continuity and stages - asks if human development is a gradual, continuous process (like riding up an escalator) or if it goes through a sequence of separate stages (like climbing up the rungs on a ladder).
        3. Stability and change - asks if our early personality traits persist through life or if we become different people as we age.
2. Conception
    1. The female is born with all her eggs that she will have for the rest of her life. Men continuously produce sperm throughout their lives.
    2. Conception is where the sperm fertilizes the outer coating of the egg.
    3. The gender is determined by the 23rd chromosomal pair.
        1. XX is female and XY is male. This is determined by the father.
3. Prenatal development
    1. At about 14 days, the zygote becomes an embryo, all of which are very similar. It's an embryo for two weeks, then cells begin to specialize and grow organs and a tiny heart. Organs begin to form and the heart begins to beat.
    2. By the seventh week, we see sexual differences due to tiny testes.
    3. By nine weeks, the embryo becomes a fetus and organs develop so the child can survive outside of the womb.
4. The competent newborn
    1. Infants begin to roll over.
    2. Then they sit unsupported, crawl, and walk
    3. Before age three and a half, we don't remember anything. We then can remember and learn, but generally more implicit memories, because explicit memories are more verbal (which is beyond an infant's ability).
5. Physical development
    1. Brain cells develop very fast in the womb.
        1. Neural networks grow very fast after birth.
        2. The frontal lobe booms next, then the association areas (thinking, memory, language).
    2. Maturation is the orderly sequence of biological development.
    3. Motor skills develop in an orderly manner.
        1. Babies roll over, sit up, crawl, then walk—in that order. Identical twins do these things on almost the same day.
    4. Before age 3½, we have "infantile amnesia"—we can't remember.
6. Cognitive development
    1. At some point after conception, we all gain consciousness – we become aware of ourselves and our surroundings. Our brain and our thinking gets better.
    2. **Jean Piaget** studied how our ability to think develops. Piaget believed that the human mind develops through a series of stages.
        1. To Piaget, our minds are always trying to make order out of what we take in through our senses.
        2. When we experience something, we build **schemas**. These are concepts or frameworks that organize and interpret information. They're "how things fit together."
            1. For example, a child forms a schema for "dog" early on – it's a furry, four-legged animal. The child may latter confuse a cat with a dog, because a cat fits the furry, four-legged animal schema.
            2. As we go through life, we **accommodate** our schemas meaning that we revise and refine them.
        3. Piaget came up with four stages of development…
            1. **Sensorimotor stage**
                1. This takes place from birth to roughly age 2.
                2. In this stage, babies "take in" the world through their senses and interactions.
                3. Babies here do not have **object permanence** – the realization that things continue to exist even when they can't be seen.
                    1. This explains why the game of Peek-a-Boo is so fun at this age. A hidden face is really gone, to the infant, then suddenly it's back! Wow!
                4. Object permanence tends to show up around 8 months of age.
                5. There is some evidence to show babies do have some logic.
                    1. Babies were shown an illustration of the frame of a box. One was normal, one was impossible to construct (it was puzzling to look at). The babies looked at the impossible box longer which seems to show that they recognize it as impossible.
                    2. Babies also seem to be aware of numbers. If shown 5 toys, then shown only 4, they seem surprised.
            2. **Preoperational stage**

1. This takes place from about age 2 to 6 or 7.
2. Children here are too young to do mental operations.
3. For example, children in this stage do not have a grasp of **conservation**. Conservation is the idea that something can retain or conserve a characteristic while something else changes.
    1. For example, a liquid can retain its quantity or volume but change its shape.
    2. Children were shown 2 identical glasses filled with a liquid. They obviously had equal volumes. Then one glass was poured into a tall, skinny glass. The liquid naturally filled up higher in the skinnier glass. When asked, "Which as more?" the children usually say the tall, skinny glass has more because it's higher.
4. Children at this stage are **egocentric** – they view the world through their own viewpoints and are unable to view a situation from another person's point-of-view.
    1. A child here may cover his or her eyes thinking, if I can't see them, they can't see me.
    2. The famous example is asking a 5 year old, "Do you have a brother?" He answers, "Yes, his name's Billy." Then asking, "Does Billy have a brother?" The child answers, "No," because he can't see back to himself as being Billy's brother.
5. Children at this stage can develop what's called the **theory of mind**. This is the ability to read another person's intentions.
    1. At this stage, children can begin to understand why somebody did something.
    2. Because they can understand intentions, they can formulate expectations about what will happen in a situation.

3. **Concrete operational stage**
    1. This takes place from about age 6 or 7 to about 12.
    2. Children in this stage can think with concrete, physical objects and understand conservation.
    3. They cannot think in the abstract, however. In math, a child here will often use his or her fingers (physical things) to add or subtract. They struggle to make the jump to an abstract algebra question, like "If you have 5, how many more do you need to make a dozen?" This would simply be shown as $5 + x = 12$. The variable is an abstract concept.
4. **Formal operational stage**
    1. This begins at about age 12.
    2. Thinking changes from being confined to the concrete to including the abstract.
    3. Children here can use symbols and variables in their thinking.
    4. Children can figure if-then statements. These are systematic or logical reasoning abilities.
        1. For example…If Bill is taller than Mary and Mary is taller than Jim, then what can we say about Bill's height in relation to Jim's? A child here would get this right, a child of age 7 may not.
        2. Full-scale logical abilities won't kick in until the teen years, but they start here.

4. Piaget ranks as one of the most influential psychologists ever. On education and child development, he is likely #1.
    1. New research suggests he may have underestimated logic among youngsters.

7. Social development
    1. At about 8 months old, babies have developed schemas for familiar faces. When given over to someone who does not fit the schema (an unfamiliar person) they often grow upset and reach out to the familiar person. This is called **stranger anxiety**.
    2. Mary Ainsworth studied attachment in her famous "**strange situation**" experiment. The **secure attachment** bond between a 12 month old and a parent is strong and obvious.
        1. Attachment is aided early-on by physical contact. We respond positively to softness, rocking, feeding, and patting.
        2. Being social creatures, all through life we attach ourselves to others who will always "be there for us."
        3. We also grow attached to what's familiar.
            1. Animals grow attached to their parent during what's called the **critical period** – the best time for bonding. Think of the critical period as an open window, the only time it can happen.
                1. The attachment that occurs at this time is called **imprinting**. It's hard-wired into the critter during the critical period time.
                2. Animals can sometimes bond with anything. Birds bond just after hatching to whatever's moving. Normally it's the mother, but they can be trained to bond with almost anything that moves, such as a dog or even a tin can dangling on a string.

1. This was illustrated by **Konrad Lorenz** who imprinted baby geese onto other "mothers".

2. People don't have the critical period imprinting. We have a "sensitive period" that's less written-in-stone. Children like what's familiar – same faces, same stories, same routines. These things mean safety and comfort.

4. When put in strange situations, children react differently.
    1. Children with mothers or parents that are very interactive do the best in strange situations.
        1. **"Harlow's monkeys** became a famous experiment.
            1. The Harlow couple raised monkeys with either a wire mesh "mother" or a wire mesh mother covered with a furry carpet.
            2. The baby monkeys with the furry fake-mothers adjusted better. The physical contact seemed to make all the difference.
            3. The monkeys with the metal "mothers" became panic-stricken with fear.
            4. The conclusion was that physical contact is very important to healthy child-parent attachment.
        2. **Mary Ainsworth** studied the attachment of an infant and mother in her "**Strange Situation.**"
            1. The "Strange Situation" had a mother and child at about 12 months playing in a room.
            2. Another unknown adult entered, then the mother left the room, the child became distraught, then the mother returned.
            3. Some parents responded consolingly to the child, other parents not-so-much. The children of responsive parents showed a more **"secure attachment"** than children of less-responsive parents.
    2. A person's **temperament** is a person's genetic tendency as to how they react and how intensely they react to a situation.
        1. Even only weeks old, a person's temperament starts to show up as being reactive or calm, fidgety or relaxed, unpredictable or predictable.
        2. As children, our temperaments, like being shy or outgoing, tend to persist as we grow older.
        3. These findings are supported by twin and adoption studies that try to gauge the nature-nurture influence.
        4. Still, the answer to the nature-nurture debate is that both are important (this is always the answer).
    3. Studies usually focus on the mother, but fathers matter too. When studying thousands in Britain, children with caring, interacting fathers "turned out better" (school, wealth, etc).
    4. A child's attachment peaks at around 13 months of age.
    5. **Erik Erikson** said that kids that are securely attached to their parents approach life with a **basic trust**. They see life as a safe, predictable place and approach life with a more "go get 'em" attitude.

5. What happens if a child does not develop an attachment to parents?
    1. It's a terrible thing for a child to be raised without care, interaction and love. The result is that the person is usually withdrawn and frightened, like the experiments by the Harlows on monkeys "raised" by fake metal mothers.
        1. These children grow up, have their own kids, then are abusive to their kids at a more frequent rate than is normal.
        2. Abused children grow up bearing a laundry list of possible problems – brain/hormonal changes, nightmares, depression, increased substance abuse, binge eating, aggression, crime.
    2. Removing a child from a "happy home" can also have similar negative effects.
        1. For this reason, courts are very reluctant to remove children from parents.
        2. The question arises, "Does day-care hurt a child's attachment to the parent?"
            1. If the day-care is good, the answer is, "No, it doesn't hurt." Good is defined as a stimulating, caring environment, with an adult for 3-4 kids.
            2. On the good side, kids who spent the most time in day-care at about 5 years old had slightly better language and thinking skills. On the bad side, they were more aggressive and defiant.
    3. People develop an idea of "self."
        1. Babies start to gain "self awareness" at about age 6 months when babies begin to interact with themselves in a mirror.
        2. Around 15-18 months, a baby with a spot on his/her nose in the mirror will reach for his/her own nose.
        3. By grade-school age, a child identifies him or herself in terms of gender, group membership, personal characteristics, and they compare themselves to others.
        4. By age 8 to 10, self-image is very much set.

5. By about age 12, most kids have a developed a **self-concept** – an idea of who you are as a person. Their "self-esteem" is how you feel about who you are.
6. There are three main parenting styles, according to **Diana Baumrind**.
    1. **Authoritarian** – these parents believe children need rules and must obey them.
    2. **Permissive** – these parents believe children should make and learn from their own mistakes; they provide few rules.
    3. **Authoritative** – these parents are demanding and responsive. Rules are set and are explained, the rules are enforced and punishment is given when rules are broken, and rules are eased when the child shows he/she can accept responsibility.
        1. Like Goldilocks, these parents are "too hard", "too soft", and "just right."
        2. Children of authoritative parents have better self-esteem, self-reliance, and interact better with others.
7. A person's culture influences how they raise their kids.
    1. Western cultures (U.S. and Europe) tend to value individual strength.
    2. Asian and African cultures tend to be less individual-oriented and more group/family oriented. Anything that honors the individual honors the family; anything that shames the individual shames the family.

8. Gender development
    1. In most ways, men and women are the same. 45 of 46 chromosomes are identical. Yet, as always, we focus on the differences. And in case you haven't noticed, there are differences between men and women.
    2. Self-esteem scores differ slightly. Men are slightly higher in self-esteem scores than women. As to why this is the case, who knows?
        1. It likely has something to do with the perceived expectations – the "general view" is that a woman is slender, young and attractive. If a woman feels she doesn't meet this view, she'll sadly score herself lower in self-esteem. Don't fall into this trap girls! You're beautiful because of who you are!
    3. Women can smell better, express emotions better, are helped more.
    4. Women are also more often depressed, anxious, and have a 10 times greater chance of developing an eating disorder (this goes back to expectations).
    5. Men are 4 times more likely to commit suicide or become alcoholics, and are more often autistic, color-blind, have ADHD, or are anti-social.
        1. Men are more aggressive than women.
        2. Men, in most cultures, are the "more dominant" gender socially.
    6. More differences…
        1. Men tend to be more accomplishment-oriented, women more relationship-oriented.
        2. Males spend more time alone; women more time with others.
        3. Males are more thing-oriented; women more people-oriented.
        4. Males are more me-reliant than women (and therefore less religious).
        5. These traits peak at late-adolescence/early adulthood and reach a low-point at around age 50.
    7. The nature of gender is a mix of nature and nurture, like most things in psychology.
        1. Biologically, males have an extra Y chromosome, females an X.
        2. The Y chromosome tells males to grow the testes and testosterone.
            1. If a girl has a glandular irregularity and has more testosterone, her genitals may appear boyish. As a girl, she may be tomboyish. Still, she is usually not homosexual and not trans-sexual; she's a girl.
            2. Animals, like monkeys, reflect the notion above that girls behave like girls and boys like boys. There is a less clear behavior amongst people. The belief is that the way others interact with a tomboyish girl affects the way she acts – she may act more boyish because she's treated more boyish (not because she actually is).
        3. The nurture of gender matters as well (as just stated).
            1. **Gender-role** expectations play a huge role in shaping who we are.
            2. Our gender identity is our sense of being male or female (isn't that clear already?!).
                1. Our **gender type** is how others see us in terms of male/female. Some boys show more "girlish" traits and vice-versa.
                2. **Social learning theory** suggests that we learn boyish or girlish traits through observation and imitation. I.e., a girl watches a mother with a baby and mimics her with a baby doll.
                3. To children around age 5 or 6, gender differences are huge differences.

9. Parents and early experiences
    1. Unquestionably, our parents and upbringing shape who we are and our future.
    2. We humans begin at conception – both our lives and our upbringing begin then.
        1. Genetics forms our physical makeup, but the environment (nutrition, love, interaction) fills in the spaces.
        2. A study of rats had one group alone and in a blank environment. A second group had playmates and a stimulating environment. The second group's brain cells were considerably more developed.
        3. The brain is like a muscle – when it's used, it grows, when it's not used, it's stunted.
    3. The question arises, "How much credit or blame should parents get for a child's successes or failures?"

1. It's popular to blame a person's failures on the parents' failures.
2. In essence, this is the easy way out. People are responsible for their own actions and to blame a parent decades earlier is to shirk self-responsibility.
3. It's not fair or healthy to grow stuck on problems of the past – we can overcome and move on from bad things that happened in our past.

10. Peer influence
    1. During childhood and especially in adolescence, we're concerned about fitting in with peers.
    2. Parents and peers tend to split "responsibilities"…
        1. Parents are turned to for the long-term – discipline, order, education, stability and the future.
        2. Peers are turned to for the now – popularity, style and interaction.
11. Physical development
    1. Adolescence begins at puberty with the beginning of physical maturity. It's often a conflicting time of being half-child, half-adult.
        1. Girls begin puberty earlier than boys and have an earlier growth spurt than boys. At around age 11 to 13/14, girls are actually taller on average than boys.
12. Cognitive development
    1. In early adolescence, pre-teens develop increased reasoning ability. But, they often view their reasoning as being unique (it's not).
    2. In later adolescence, teens develop the ability to reason abstractly.
        1. They can reason things like fairness, right-and-wrong, good-vs.-evil, etc.
        2. They can think hypothetically and make deductions based on situations in their minds. Thus, they can point out hypocrisies or problems with parents and get into serious debates.
    3. **Lawrence Kohlberg** is the heavyweight of moral development, just as Jean Piaget is the heavyweight of cognitive development. Kohlberg gave people moral dilemmas, tough questions, and studied how people figure right and wrong. Like Piaget, Kohlberg came up with stages…
        1. **Preconventional morality** – This takes place before age 9 and focuses on a child's self-interest. Something is good if it helps the child (no matter that it might hurt someone else). Rules are obeyed simply because doing so avoids punishment.
        2. **Conventional morality** – This takes place around age 9 to the mid-teen years. Things are done because there are rules and they are to be obeyed. It's as if they're being "good citizens" and are following the laws because they are laws, unquestioningly. A person here would say stealing is wrong because there are laws against it.
        3. **Postconventional morality** – This begins at later adolescence and sees people doing things out of respect for others rights or human dignity or basic ethical beliefs. A person here would explain that stealing is wrong because it violates another's right to property.
        4. Kohlberg asked tough, "What would you do?" questions like, "Is it okay to steal medicine to give to someone who needs them?" He was interested in why the person said it's okay or not.
            1. Character education today focuses on doing "the right thing." This can be a very ambiguous interpretation though, what's "right" can be answered many ways. Traditionally, religion answers this question with moral absolutes.
            2. People who delay gratification are more socially responsible and successful. These folks work for the future rather than live for the now.
13. Social development
    1. **Erik Erickson** studied "psychosocial" development. Like Piaget and Kohlberg, he came up with stages of development, 8 in all.
    2. Erikson believed that at each stage a person faced some type of a crisis. He or she needed to resolve that crisis before moving on to the next stage. Erikson's stages were…
        1. Trust vs. mistrust – Infancy – If an infants basic needs are met, they develop trust.
        2. Autonomy vs. shame/doubt – Toddlers – They wish to do things on their own, or they're ashamed.
        3. Initiative vs. guilt – Preschool – They make and carry out plans, or they're guilty for failing to do so.
        4. Industry vs. inferiority – Grade school – Kids feel good about being productive, or they feel inferior for failing to do so.
        5. Identity vs. role confusion – Adolescence – Teens test different roles, or they're confused about who they are.
        6. Intimacy vs. isolation – Young adults – They try to gain a close loved one, or they feel alone.
        7. Generativity vs. stagnation – Middle aged – They gain a sense of adding to the world through family and/or work, or they feel they've no purpose.
        8. Integrity vs. despair – Late adulthood – They look back on their lives and either see a sense of worth or failure.
    3. A person's **identity** a person's stable sense of who they are.
    4. A person's social identity is how people view themselves in comparison to others; it often involves what makes them unique.
    5. **Intimacy** often comes after a person has a good sense of his/her identity.
    6. Adolescents simultaneously grow in their sense of identity and drift away from parents. In return for parents losing influence, a teen's peers gain influence.

1. Teens infamously become very concerned with what "everybody else is doing" and the influence of peer pressure.
2. Teens who withdraw from others often see negative effects – loneliness, low self-esteem, and depression.
3. Parents still have influence in terms "big decisions" like religion and career choices.

14. Emerging adulthood
    1. By the 20s, younger adults still rely on parents until about the late 20s. This trend is getting later and later.
        1. Women today begin to physically mature earlier, yet marry later than about 125 years ago.
        2. This delay may be due to the fact that kids go to school now, rather than work.
    2. The term **emerging adulthood** is usually at about age 18 to mid-20s. These younger adults are often "on their own," but also often rely on parents financially and "return home" for the holidays.
15. Physical development
    1. Throughout adulthood of say ages 30 to 60, we continue to grow and change.
    2. Physically, we peak in the early 20s in terms of strength and agility. Then a gradual decline begins.
    3. At middle-age, after about age 40, the decline accelerates.
        1. Women after age 35 are less likely to become pregnant.
        2. Women usually reach **menopause** around age 50, when they stop menstruating.
    4. Later adulthood begins at about age 60.
        1. People are living longer nowadays. The worldwide life expectancy in 1950 was 49 years; today it's 67 (it's 80 in developed countries due to better nutrition, health care).
            1. Thus, people as a group grow older and age longer than in the past.
            2. Females tend to outlive men by about 5 years.
        2. Older bodies are prone to weather extremes, falls, and infections.
        3. Our human spirit matters too. Fewer people die on Christmas day or birthdays, but more die just after. This suggests we "hold on" to those milestone days, then tend to give up hope.
        4. Our senses decline with age.
            1. After age 70, our senses of sight, smell and hearing take a dramatic nosedive.
            2. Also after age 65 or 70, fatal accidents tend to go up sharply.
        5. After about 65, our immune system weakens, but we've also built up many antibodies that ward off short-term things like colds.
            1. Older people take more time to process things mentally. Our reaction times decline which gives rise to automobile accidents.
            2. Our brains also physically grow smaller, by about 5% by age 80. The frontal lobe atrophies and makes us less inhibited.
            3. Physical activity helps with brain growth and neurogenesis. So, staying active physically is important for older folks mentally.
        6. Dementia may also be brought on by a small strokes, a brain tumor, or alcohol dependence.
        7. Alzheimer's disease hits about 3% of people.
            1. Memory goes first, then reasoning. A declining sense of smell signals the onset of Alzheimer.
            2. Later symptoms are loss of emotions, disorientation, no inhibitions, and incontinence.
            3. Causes are the loss of brain cells, deteriorated neurons that no longer produce acetylcholine (a chemical messenger).
            4. Staying physically active, avoiding obesity, and keeping the mind active (as with reading) helps ward off Alzheimer's.
16. Cognitive development
    1. The question is, "As people get old and their bodies decline physically, does their mind also decline?"
    2. Memory seems best around age 20. Experiments seem to show that memory declines with age.
    3. A broader view of age's impact on intellect unfolded in stages…
        1. Phase 1 – Cross-sectional studies (across age groups) showed that intelligence test scores went down with age.
        2. Phase 2 – Longitudinal studies (follow the same people over many years) showed quite a bit of stability in intellect with age.
        3. Phase 3 – The results are mixed on the impact of age on intellect. Younger people think faster, but older folks have deeper understanding.
            1. Crystallized intelligence – our sum quantity of knowledge (like vocab words) – increases up to old age.
            2. Fluid intelligence – our reasoning speed and ability (like solving a puzzle) – decreases up to old age.
17. Social development
    1. The belief in a "mid-life crisis" seems to be a myth.
    2. We have a **social clock** that tells us the supposed best time to do things (move out on own, get married, have kids, etc.). Still, random, chance encounters in life matter – especially when falling in love.
    3. For adults, two things seem to top all others: love and work.
        1. Love (or intimacy, attachment) is a close connection with that special someone with whom to share life's journey.
            1. Marriages last longer when couples wait to marry and are educated.

    2. Couples who live together before marriage are more likely to divorce. Kids born to cohabiting parents are five times more likely to see parents divorce than those born to married parents.
    3. Married couples report greater happiness.
    4. Children bring amazing blessings as well as challenges. When kids leave home, the parents happiness usually increases.
2. Work (or generativity, achievement, productivity)
    1. Many adults define themselves by their jobs.
3. Happiness is reported by about 80% of people over age 15. It dips a little bit in the middle years (35-50) then rises around age 60. Older folks seem less negative, more positive.
4. Likely the most challenging thing a person faces is the death of a spouse or a child. An unexpected death is even more traumatic.
    1. There are no set-in-stone stages of grief, like denial, anger, yearning for the lost person. But, anger peaks around a month later, yearning about 4 months later.
    2. Talking to family and friends helps the grieving. Helping others also helps heal the grieving.
    3. Women are 5 times more likely to lose a husband to death than the other-way-around.

Unit 10: Personality

1. Introduction
    1. **Personality** is a person's typical way of thinking, feeling, and acting. It's what makes each person unique.
    2. Personality is a bit of a wishy-washy area of psychology. Whereas biological psychology can be nailed down in black-and-white, for instance, personality can be very gray in its answers.
    3. There are two main approaches of personality psychology…
        1. **Psychoanalytic approach** proposed mostly by Sigmund Freud. This approach suggests that people do things because of unconscious struggles started in childhood, often sexual in nature.
        2. **Humanistic approach** led by Abraham Maslow and Carl Rogers. This approach focuses on our potential for growth and reaching our full potential.
    4. Modern personality psychologists build on these theories and study things in a more scientific manner. They study biology of personality, interactions of people and the environment, self-esteem, self-serving bias, and cultural influences.
2. Exploring the unconscious
    1. **Sigmund Freud** is likely the most recognizable name in psychology. He was a bright student who became a physician. As a doctor studying nervous disorders, he found out that some people had problems that had no physical explanation. He sought a psychological explanation.
    2. Freud thought the key to explaining a psychological cause was in a person's unconscious.
        1. He first tried hypnosis to "unlock" the unconscious.
        2. Then he tried "free association" where he'd say a word and they'd say whatever immediately popped into their heads.
            1. The idea was that they'd be revealing clues to their unconscious.
            2. Freud thought the clues would lead back to the person's painful childhood memories.
        3. Freud used an iceberg to illustrate the mind.
            1. The conscious part of our mind is above the water line.
            2. The waterline itself was the preconscious, where memories sort of floated above and below.
            3. Most of the iceberg is below the water, the unconscious. He felt these memories were "repressed" into the unconscious because they were too painful to remember.
                1. The theory says that these repressed memories "surface" by directing our actions, unknowingly to us.
            4. They might also come out in a "Freudian slip," that's when we say the wrong thing out loud, but to Freud, it's the truth surfacing.
            5. Freud analyzed dreams. The **manifest content** was what was remembered – it was the censored version. He was interested in the **latent content**, that which was not remembered.
    3. For Freud, a person is constantly struggling with him/herself. Think of it like a play, there were 3 main "characters"…
        1. **Id** – The id is the bad guy. Id is the little devil on your shoulder saying , "Do it! You know you want to, do it!"
            1. These are unconscious desires. The id goes for whatever feels good, right now. The id wants sex and drugs, for instance.
        2. **Superego** – The superego is the good guy. Superego is the little angel on your shoulder saying, "You know that's not right. Do what's right and *don't* do what's wrong."
            1. This is our moral compass that details right from wrong. Superego knows it's just not right to go around satisfying our sexual cravings anywhere and everywhere. Freud thought this kicked in starting around age 4 or 5.
        3. **Ego** – The ego is the negotiator who keeps them both happy.
            1. Ego is the "smart guy" who figures out some way for the id to get what he wants, but in a manner that superego is okay with.
    4. Freud thought people went through **psychosexual stages** of development. There are…
        1. Oral stage – 0 to 18 months – pleasure centers on the mouth.
        2. Anal stage – 18 months to 3 years – pleasure centers on potty training.
        3. Phallic stage – age 3 to 6 – pleasure centers on the genitals including incestuous feelings.
            1. He thought boys struggle with an **Oedipus complex** where they have sexual desires for their mothers. Girls have a flip-flop "Electra complex", supposedly.
            2. In this struggle, he thought the boys saw Daddy as a "competitor", but knowing they couldn't compete with Daddy, their sexuality goes dormant into the next stage.
        4. Latency – age 6 to puberty – sexuality is dormant (inactive).
        5. Genital – puberty on – sexuality is mature.
            1. Freud thought this is where sexuality re-emerges. The desires of the earlier days are now hidden in the unconscious.
            2. The superego takes in the parents' moral values.
            3. Boys and girls begin to behave and agree with their same-sex parent in a, "If you can't beat 'em, join 'em" philosophy.

6. If a person is unable to overcome the struggles of any of these stages, the person might **fixate** (or "get stuck") on that stage.
    1. For example, a person who got too much oral pleasure, or too little, may grow up to be a smoker or lash out verbally.
    2. Or, a person who grew up either too strict in potty training might become a neat-freak, hence the term "anal retentive."

5. **Defense mechanisms** emerge when the ego can't do his job and keep both the id and superego happy.
    1. These are methods to reduce anxiety by distorting reality. It's like lying to ourselves.
    2. Some examples of defense mechanisms are…
        1. **Repression** – This is pushing desires that cause anxiety out of our consciousness.
            1. Freud thought repression was our #1 defense mechanism. This makes sense because he thought most of our mind existed in the unconscious.
            2. Freud also thought these repressed feelings, memories, or desires come out (a) in dreams symbolically and (b) through slips of the tongue.
        2. **Regression** – This is going back to our comfortable childhood days when we face a stressful situation. A child who's sent to kindergarten might start sucking his thumb again.
        3. **Reaction formation** – Freud thought we had desires that we knew we couldn't allow to surface. So, the ego unknowingly changes those forbidden desires into their opposites. This is reaction formation. For example, the bully may really be very insecure inside.
        4. **Projection** – This hides those bad desires by projecting them onto other people. For example, a girl who thinks a guy ignores her might say, "He's such a jerk, he cares about no one."
        5. **Rationalization** – This occurs when we make up a justification for doing something that we know is wrong. A smoker might say, "I smoke because it helps me relax and that makes me more productive."
        6. **Displacement** – This directs the unwanted desire (sex or aggression) toward something more acceptable than the root of the desire. For example, a child who gets in trouble at school might want to lash out at the teacher, but instead goes home and takes it out on his little brother.
        7. **Sublimation** – This is changing those unwanted desires into something socially valued. For example, a filmmaker might take out his aggression by making a movie filled with violence; it might be accepted as a work of art.
        8. **Denial** – This is where a person rejects that a problem is real or that it's actually serious. For example, a person running up a huge credit card debt might think it's no big deal.

3. **Neo-Freudian** and **psychodynamic theories**
    1. Freud gained lots of critics and some followers. His followers accepted the id, ego, superego, that personality was defined in childhood, and in the unconscious. But they differed by (1) increasing the role of the conscious and (2) decreasing the roles of sex and violence.
    2. **Alfred Adler** and **Karen Horney** (pronounced HORN-eye) felt that a child's social, not sexual, struggles define their personality formation.
        1. Adler spoke of an *inferiority complex* that occurs when we fail to overcome struggles as kids.
        2. Horney spoke of a kid's sense of helplessness that creates in us a desire for love and security.
            1. She fought back as a woman in a male-biased arena.
        3. **Carl Jung** (pronounced YOO-ng) agreed with Freud that the unconscious drove people. In this, he disagreed with the other Neo-Freudians.
            1. Jung thought the unconscious was more than just repressed desires, memories, and feelings. He thought all people shared a **collective unconscious**. This is our supposedly common collection of images that we have gained together as human beings.
            2. Jung focused on different people's myths, religions, and symbolic images. For example, he referred to the nurturing mother or brave warrior.
            3. These ideas aren't really accepted anymore.
    3. Today's psychodynamic psychologists only accept from Freud the idea that the unconscious is one of the factors that makes up our psyches.

4. Assessing unconscious processes
    1. Psychoanalysts like Freud faced a problem – how do you study the unconscious? They came up with these "tools"…
        1. **Dream interpretation** and **free association** were used. Supposedly, a trained psychoanalyst could pick out the symbols of a dream, or line up the free associated words to see a trend into the unconscious.
        2. **Projective tests** were used. These tests can be interpreted in different ways and supposedly, the person will project their unconscious in their response.
            1. In the **Thematic Apperception Test (TAT)**, people were shown a picture that could be interpreted differently.
            2. The **Rorschach inkblot test** is probably the most well-known. It's a series of symmetrical shapes that the person tells what they see. The way that the person responds to the TAT and ink blots is supposed to reveal their unconscious and their personality.
                1. The Rorschach test has supporters who say it's right-on, or at least it's useful in getting a sense of the person's personality before moving on.

2. Others say it's nonsense. They say these tests are not valid – they don't measure what they're supposed to (except for hostility and anxiety). They say these tests are not reliable – they do not give the same results when given over and over.

5. Evaluating the psychoanalytic perspective
    1. It's unfair to judge Freud's ideas as foolish based on modern research.
    2. Still, many of Freud's ideas don't meet today's knowledge.
        1. He might have misjudged the significance of dreams and Freudian slips. If you make a goof while speaking, it appears that it just might be a goof, not that you're psycho-sexually wacked out.
        2. It appears Freud might have overestimated some things, mostly, the impact of childhood on a personality.
    3. Another fundamental misjudgment might have been Freud's emphasis on repression. It appears today that that's simply not the case. There are two theories for traumatic experiences…
        1. Traumatic experiences are too bad to deal with so we push them into our unconscious. Freud would lean in this direction.
        2. Traumatic experiences are seared into our memories, never to be forgotten. History has shown that more often than not, this is the case.
            1. Evidence to this lies in cases like abuse by the Nazi concentration camps, rape, and child abuse. Those memories cannot be forgotten, even if they wished they were.
    4. To Freud's credit, our unconscious does play a huge impact.
        1. For instance, we can drive to work or school almost unconsciously, on auto-pilot, we've done it so many times.
        2. Researchers today identify a **false consensus effect** which is the tendency to overestimate how much others share our beliefs.
        3. A person's **terror management theory** tries to deal with death. In it, a person offers up defenses when thinking of their own death.
    5. In terms of science, Freud fell woefully short. He wasn't a scientist. His theories just popped into his head, not as observations from an experiment as a true scientist.
6. Around 1960, many people disliked psychoanalysis and behaviorism.
    1. Psychoanalysis focused too much on sex and aggression. We had no free will of our own, we just sought pleasures.
    2. Behaviorism was too mechanistic – it made people like robots who just sought rewards and shunned punishment. Again, we had no free will of our own.
    3. Abraham Maslow and Carl Rogers offered a third and positive choice.
        1. **Abraham Maslow** said people are motivated by a hierarchy of needs and seek self-actualization – that is to reach one's full potential.
            1. Maslow said we fulfill the most basic needs first, then move on to others.
            2. Maslow's needs are (just FYI, this list is upside down as compared to the pyramid)…
                1. Physiological – hunger and thirst
                2. Safety – to feel the world is organized and predictable
                3. Belongingness and love – the need to love and be loved, to be accepted and avoid loneliness
                4. Esteem needs – we need self-esteem, achievement, competence, independence, recognition, respect from others
                5. Self-actualization – to live up to our full potential
                6. Self-transcendence – to find meaning beyond ourselves
            3. Maslow studied "high achievers" like Lincoln, Jefferson, and Eleanor Roosevelt. He saw that they were secure in themselves and focused on what they felt was their life mission.
        2. **Carl Rogers**, agreed with Maslow, and believed that people are basically good and unless stopped, would move toward self-actualization. Rogers thought 3 parts were needed to self-actualize…
            1. **Genuineness** – a person must be honest with him/herself and not put up fronts.
            2. **Acceptance** – a person must accept others and ourselves for who we are. We must give **unconditional positive regard** which is an attitude of grace. Grace is giving something that is undeserved, like undeserved forgiveness. For instance, we accept a good friend despite any faults he/she might have.
            3. **Empathy** – a person should share another's feelings, he or she should "feel their pain." This means we honestly listen to others and honestly put ourselves in their shoes.
        3. A person's **self-concept** is crucial for a humanist. This is our sense of knowing who we are. A positive self-concept enables us to live positive lives. A negative self-concept means we fall short of living up to our full potential.
7. Assessing the self
    1. Humanists tried to measure a person's self-concept. They'd have people describe how they'd like to be, then describe how they think they really are. If the ideal and real selves are close, that's a sign of a positive self-concept.
    2. Some humanists thought surveys were too impersonal and rather used 1-on-1 interviews.
8. Evaluating the humanistic perspective
    1. Maslow's and Rogers' most basic ideas were that people are good and that a positive self-concept leads to a happy, fulfilled person. These ideas have made their way into much modern thought. Think about "self-help" books that usually stress a positive attitude and motivation.

2. Critics point out…
    1. Humanism is very unscientific. It's very subjective.
    2. Humanism is almost entirely me-focused. Rogers said that the only thing that mattered was whether a person lived in a way satisfying to himself. Caring for others also gives great rewards, often even more than caring for one's self.
        1. The humanists say that to care for others, you must first care for yourself.
    3. Humanism is very naïve. Humanists ignore that people are very capable of doing terrible evil. To think "we're all good at heart" is to not truly live in reality.

9. Exploring traits
    1. Some psychologists prefer to describe personality based on the traits that a person shows. It's like saying, "Rather than try to dig out an unconscious personality, let's just let the personality speak for itself."
    2. The "Trait Perspective" was started by Gordon Allport when he interviewed Freud. Allport, unlike Freud, was not interested in why a person behaved as they did, but in simply describing the person's traits.
    3. Isabel Briggs Myers and her mother Katharine Briggs made a questionnaire that sorted people into Carl Jung's personality types. This is called the **Myers-Briggs Type Indicator (MBTI)**.
        1. The MBTI is widely used today (2 million people take it per year).
        2. It asks either-or questions, like "Do like routines or spontaneity?"
        3. The results are tabulated and given back to the taker in positive terms. For instance, liking a set routine or spontaneity could both be good.
        4. Critics point out that the science behind the survey is lacking.
    4. Nailing down a person's traits can be tricky. Psychologists use "factor analysis" to group together clusters of descriptive words and thus lean toward certain traits (and away from others).
    5. The Eysenck couple came up with a test that rates people on a circular scale.
        1. The Eysenck test tries to measure how much a person is **introverted** vs. **extroverted** (outgoing vs. reserved), and how much they are **emotionally unstable** vs. **emotionally stable.**
        2. If the circle was a clock, "unstable" is at 12:00 and "stable" is at 6:00. "Introverted" is at 9:00 and "extraverted" is at 3:00.
    6. Biology plays a role in our personality.
        1. PET scans have shown extraverts as different from introverts and they have higher dopamine levels.
        2. Genetics also greatly impacts our personality.

10. Assessing traits
    1. If traits are long-lasting, can we measure them? **Personality inventories** try to. They're long questionnaires on a variety of topics – feelings, behaviors, etc.
    2. The most famous personality inventory, and widely used is the **Minnesota Multiphasic Personality Inventory (MMPI)**.
        1. The MMPI tries to pinpoint abnormalities in personality.
        2. It breaks things down into 10 clinical scales, like depressive tendencies, masculinity-femininity, and introversion-extraversion.
        3. This test can be computer-given and graded, so it's rather objective in its analysis.
        4. It also offers a "lie scale" which tries to pinpoint when a person is faking answers.

11. The big five factors
    1. Modern personality tests focus on the "**Big Five**" factors of personality, using the mnemonic "CANOE" or "OCEAN":
        1. Conscientiousness – how much you care about things that you do.
        2. Agreeableness – how you get along with others.
        3. Neuroticism (emotionally stability/instability) – are you secure in yourself or flighty.
        4. Openness – do you prefer newness and variety or the usual and routine?
        5. Extraversion - are you outgoing or reserved?
    2. Research on the Big Five shows that…
        1. These traits are very stable for adults.
        2. These traits are about 50% heritable (50% of the differences between people are due to genetics).
        3. The Big Five predict school grades with conscientious people getting higher marks and being "morning people." "Evening people" are slightly more extroverted.

12. Evaluating the trait perspective
    1. The **person-situation controversy** asks, "What's more important, me as I am or me as others see me?"
    2. Most psychologists believe that people's traits tend to change little. Even though we certainly can change, our tendency is to stay as we are. And the older we get, the more our personalities stabilize.

13. Reciprocal influences
    1. Many modern psychologists take an all-encompassing "biopsychosocial" approach to personality. This means personality is influenced by our bodies, minds, and interactions with our surroundings.
    2. **Albert Bandura** started the **social-cognitive perspective** of personality which looks at how our traits interact with the situation that we're in. It's the mix of nature and nurture. This idea believes…
        1. We learn behaviors by conditioning or watching others (the social part).
        2. What we think about the situation also matters (the cognitive part).
        3. Bandura said three things interact with one another:

1. Our behavior
2. Internal cognitive factor (our thinking)
3. Environmental factors

4. Bandura's ideas come back to a major theme: we are made up by the dance between our bodies and the environment that we live in, with how to *think* about these things mixed in too.

14. Personal control
    1. Whether we feel we are in control or are controlled by external factors is our sense of personal control. This is studied in two ways…
        1. By correlating people's *feelings* of control with their *achievements* and behaviors.
        2. By experimentation where researchers alter a person's control level then measure the feeling of control.
    2. Julian Rotter identified two theories on the topic of personal control…
        1. **External locus of control** – people believe that powers outside of themselves determine their fate. People in this group may develop **learned helplessness**.
        2. **Internal locus of control** – people believe they control their own fate. Consistently, people in this category do better in just about every category.
    3. **Self-control** is our ability to suppress desires and delay pleasures. People with high self-control do better in many categories and are less susceptible to depression.
        1. Physical exercise and time management are both good "exercises" for improving self-control.
        2. Improving self-control in one area tends to spill over into other areas.
    4. Personal control can be improved.
        1. Enabling a person to alter his/her environment (like the TV or workspace) boosts health and morale.
        2. The bottom line: people like control and choices and they thrive when given them.
        3. There is one drawback, too many choices can be a negative and lead to being paralyzed in decision-making.
    5. Optimism and pessimism are important to personality too.
        1. A person who's optimistic (looks at the good in a situation) enjoys better health than a pessimist.
        2. Too much optimism can breed laziness though. It takes just the right balance of optimism and realism.
            1. Too much optimism leads to the "it'll never happen to me" syndrome.
    6. Incompetence is often blind to those who are incompetent. Only someone who can do the task can see an incompetent person's shortcomings. For instance, if you can't spell, you don't recognize misspelled words, but a good speller does.
        1. The solution, if you're wondering, "Am I incompetent?" is to ask others for their candid input.
15. Assessing behavior in situations
    1. Social-cognitive psychologists are interested in how people behave in certain situations.
        1. The military, education, and business worlds have taken this view and puts their recruits through realistic simulations to see how they handle it.
    2. The belief is that the best predictor of future performance is past performance (not personality or anything else). This belief is nothing new, is widespread, and is probably right.
16. Evaluating the social-cognitive perspective
    1. People who criticize this approach say there is a failure to recognize the "people-factor", the emotions and innate personality involved. Too much focus on the situation, they say, removes the humanity from the situation which simply must play a part in a person's reaction.
    2. Also, our bodies matter. One person may have a different physical reaction to a situation than another (think nervousness or stuttering, for example).
17. The benefits of self-esteem
    1. Our concept of "**self**" has many faces – everything between how we imagine ourselves positively in the future and how we fear ourselves regressing back toward. Moving ahead to better times and avoiding backsliding to worse days both motivate us.
    2. The so-called **spotlight effect** says that we tend to overestimate how much others will certainly notice us.
        1. For example, if we feel that we're having a "bad hair day", we tend to think everyone will notice. In truth, few do.
    3. Having a high **self-esteem**, a feeling or self-worth, is beneficial. The positive effects are numerous and substantial, such as: better sleep, lower need to conform, persistence, less shy/anxious/lonely, and happier. They also predict higher salaries in the future.
    4. On the flipside, low self esteem has its negative effects such as…
        1. Being more critical of others.
        2. Increased racial prejudice.
18. Self-serving bias
    1. People usually have a **self-serving bias** which is a tendency to view ourselves favorably. Evidence to support this is:
        1. We're prone to accept credit for doing good, not bad.
            1. For example, after doing poorly on a test, students often blame the test itself or the teacher for their poor score. But, when receiving a good grade, they say they earned it.
        2. We're prone to see ourselves as above average.

        1. For example, people usually rate their job performance as above average. By the very definition of "average", this cannot be true.
        2. People have a strong tendency to come up with excuses as to why we have more positive qualities than others and fewer negative qualities.
    2. People who think of themselves as rather awesome are often "shot down" by others who simply don't see them that way. The person who thinks he's awesome often reacts back aggressively or violently.
    3. The recent "Generation Me" shows a trend toward a focus on me, me, me. The effects are not good – materialism, desire for fame, unrealistic expectations, relationships without responsibility, gambling, and cheating.
        1. Even people who put themselves down might actually do it for the purpose of getting attention. It's like they're saying, "Nobody cares about me," but they're thinking, "Hey, look at me!"
        2. Sometimes, we all put ourselves down. But, more often, we pump ourselves up.
    4. Two types of self-esteem have been noted…
        1. **Defensive self-esteem** focuses on defending yourself from "attacks" and correlates with aggression and antisocial behavior. It's like saying, "Nobody's gonna say I'm unfriendly! Are you calling me unfriendly punk?!"
        2. **Secure self-esteem** is not as dependent on outside factors, but more on internal factors like being secure with yourself for who you are. It's like saying, "I know who I am, and I'm okay."
19. Culture and the self
    1. The culture in which we grow up and live helps determine our values.
        1. **Individualism** is a person doing their own thing. This is typical of Western cultures like the U.S. and Western Europe.
            1. People here value setting, pursuing, and achieving personal goals.
            2. Think of a shark prowling the seas on his own. The value is in the individual shark, master of his domain.
        2. **Collectivism** gives priority to one's group. The group defines values, gives a sense of belonging and care. This is typical of Asian cultures.
            1. People here value being a part of the group rather than showcasing themselves.
            2. Think of a school of fish massed together, no one is any different from any other. The value is in the group (the school), not an individual fish.
    2. Across cultures, men tend to enjoy more individualism and freedom than do women.
    3. Individualist countries also have higher divorce rates, more loneliness, and more stress-related disease. They also demand more in relationships.

Unit 11: Testing and Individual Differences

1. Introductions
    1. The question of whether each person has inborn mental abilities – whether you're born with a maximum intelligence/minimum stupid level – is a touchy subject.
    2. Trying to measure "intelligence" is a tough subject. It beckons questions…
        1. What exactly is intelligence?
        2. How can you measure it? Or can you?
        3. Does putting an "IQ" number on "intelligence" mark the person for success as a "genius" and thus boost confidence or label them as a lifelong "doofus" and squelch their self-confidence and ambition.
    3. "Intelligence" is a concept, not a trait like height or weight. Thus, it's wrong to think we can measure intelligence as we do with height or weight.
        1. Different cultures define intelligence in different ways.
            1. Western cultures, like the U.S., put a high value on factual knowledge, vocabulary, and math skills.
            2. Other cultures, like traditional Native American cultures, may say an unschooled, but wise old shaman is intelligent. Though viewed as intelligent, this person might do very poorly on a standard intelligence test that measures vocab and math.
        2. An "**IQ**" test, or **intelligence quotient** test yields a number with 100 being average. But, it's wrong to say, "My IQ is 105." It's correct to say, "I scored 105 on an IQ test."
    4. A working definition of **intelligence** could be: the ability to learn from experience, solve problems, and adapt to new situations.
2. Is intelligence one general ability or several specific abilities?
    1. Sometimes people are extremely good at one thing, like math or art. In that field, they might be brilliant, but in other areas, might be very low-performing.
        1. Charles Spearman felt people have a single **general intelligence** that's usually shown simply as ***g***.
            1. He helped develop **factor analysis** which is a statistical procedure that identifies clusters of related items. In this case, it tries to measure *g*. For instance, people that do well on verbal tests tend to also do better than average on spatial reasoning tests.
        2. L. L. Thurstone disagreed with Spearman. Thurstone identified 7 clusters of mental abilities: (1) word fluency, (2) verbal comprehension, (3) spatial ability, (4) perceptual speed, (5) numerical ability, (6) inductive reasoning, and (7) memory.
            1. He did not give a single intelligence score.
            2. But, the fact remained – when a person scored high on one of the clusters, they tended to score well on the others. Thus, there appeared to be a bit more evidence to some level of a g score.
            3. Intelligence might be like athletics. There are many skills in athletics. An athlete may excel at one or two only. But, if an athlete excels at one, he or she likely would do better-than-average on others simply because he or she is naturally a good athlete.
        3. Satoshi Kanazawa takes an evolutionary approach saying people developed intelligence as a means of solving unique problems.
    2. Howard Gardner sees intelligence not as a single thing, but in multiplicity.
        1. He studies people of low or exceptional abilities. People with **savant syndrome** often score low on intelligence tests, yet they can excel beyond imagination in other areas.
            1. Some savants are like human calculators, some can tell the day of week for any day/year, some can draw amazing works of art or compose terrific pieces of music.
            2. Most famous was Kim Peek on whom *Rain Man* was based.
            3. These folks are sometimes referred by the term "idiot savant" – it's not a very nice term, but captures low-performing and high-performing aspects.
        2. Gardner's 8 intelligences…
            1. Linguistic
            2. Logical-mathematical
            3. Musical
            4. Spatial
            5. Bodily-kinesthetic
            6. Intrapersonal (self)
            7. Interpersonal (others)
            8. Naturalist
        3. Evidence does point that scoring well on an intelligence test that predicts graduate school success (the GRE) also suggests that person will later be successful in their careers.
            1. This passes the "common sense test" – if you do well on the SAT or GRE, you get into the good schools, then you get the good jobs.
            2. But, once you get there, excellence seems based more on good old-fashioned hard work. The "10 year rule" says to do well at anything requires 10 years of "intense, daily practice."
        4. Robert Sternberg says there are 3 intelligences…

1. Analytical intelligence (academic problem-solving)
    1. These tests set up a specific problem with a single answer.
    2. These tests predict school success well and vocational success fairly well.
2. Creative intelligence
    1. These tests measure how a person responds to a novel situation and how they create fresh ideas.
3. Practical intelligence
    1. These skills are used for everyday life, so the skills-set is rather wide open. The skills could include writing, speaking, interacting, motivating, etc.
4. The College Board (who runs the SAT and AP program) worked with Sternberg to make new types of tests.
    1. He came up with creativity tests like filling in a caption to a cartoon.
    2. The tests seemed to help predict college success or failure. They also seemed less ethnically biased.

3. Emotional intelligence
    1. There's academic intelligence, but there's also social intelligence. It's like the bookworm-nerd who aces all tests at school, but who can't interact with his peers. It's book-smarts vs. street-smarts.
    2. People that do well in rational thinking, and are often bosses and in leader positions, often don't do well socially.
    3. This idea of **emotional intelligence** is suggested as being made up of 4 abilities…
        1. Perceive emotions – A person can pick up emotions from others.
        2. Understand emotions – A person can predict emotions and gets their impact.
        3. Manage emotions – A person can show emotions appropriately.
        4. Use emotions – A person can adapt emotions and use them creatively.
    4. People with a high emotional intelligence, and the 4 skills above, are sound themselves and get along with others well.
    5. Sometimes, brain damage can change emotions. A man named Elliot had a brain tumor removed and was left without the ability to feel emotions. As a result, his personal and professional life suffered.
4. Is intelligence neurologically measurable?
    1. Brain size seems to matter. Poet Lord Byron had a 5 pound brain (rather than an average 3 pound brain). And Beethoven's had many more and deeper convolutions.
        1. Brain size and intelligence correlate at +0.33. This is a slightly positive correlation, meaning, to a small degree, larger brains mean smarter people.
        2. Einstein's brain was rather normal in size, except that it was large in the lower parietal lobe which handles math and spatial info.
        3. Since there is a slight positive correlation between brain size and intelligence, what question then becomes, "Why?" (genetics, nutrition, stimulation, etc.).
    2. People with high education levels have more brain synapses. As to why, it could be they grew more through education or that they had more and sought more education. We don't know.
    3. People with more **gray matter** (neural cell bodies) tend to have higher intelligence.
    4. The frontal lobe seems to be where we do our processing of info – on the left side verbally, on both sides for spatial issues.
    5. The speed with which a person processes info also hints at intelligence. Speed and a score on an intelligence test correlate at about +0.30 to +0.50.
        1. This correlation may not be due so much to speed, as to the fact that fast-processers may be able to take in more info.
5. The origins of intelligence testing
    1. Plato saw that people have abilities unique to themselves.
    2. **Francis Galton**, at the end of the 19th century tried to measure intelligence.
        1. Somewhat oddly, he measured physical traits and compared them to intelligence – not surprisingly, they didn't correlate.
        2. His legacy was to give some measuring techniques, the term "nature and nurture", and the attempt to objectively measure intelligence.
    3. **Alfred Binet** is the <u>father of modern intelligence testing</u>. Around 1900, he was charged with coming up with a way to identify students who might need special teaching.
        1. Binet started by assuming that people develop in a step-by-step manner. If one student is slow, he or she is just at a younger stage of development. Thus, he was interested in the student's **mental age** as well as his or her **chronological age**.
        2. Binet felt that intelligence manifests itself in a variety of ways.
        3. He <u>developed a test to predict how well a student would do in school</u>. This is the forerunner of today's SAT and ACT which predict how a student will do in college.
            1. Binet did not think his test measured intelligence (g). His goal was to simply identify students with special needs in school. He felt all students could learn.
            2. Binet also worried about labeling a student as a "special needs" student and thus lowering the expectations for that student.

4. Stanford professor **Lewis Terman** believed we could place a number on intelligence. He decided Binet's Paris-made questions were not good in California, so he made changes…
    1. He altered the questions, changed the age norms, upped the range from teens into "superior adults."
    2. This test was and still is called the **Stanford-Binet**.
    3. The term **IQ**, short for intelligence quotient emerged. This term gives us a number, supposedly showing intelligence. The formula is: IQ = (mental age divided by chronological age) x 100
        1. So, if a child is 12 years old and has the mental age of a 12 year old, 12 divided by 12 is 1.0, times 100 gives an IQ of 100. 100 is by definition an average IQ.
        2. If that child is 12 but has a mental age of a 13 year old, 13 divided by 12 is 1.08, times 100 gives an IQ of 108.
    4. IQ tests can be used as a weapon.
        1. In the 19th century, "eugenics" was popular. It's the idea that only smart and strong people should be encouraged (allowed) to reproduce. The idea was to stamp out the poorer human traits and continue the strong ones.
        2. In the 1920s, immigrants were given IQ tests. They often did poorer than Anglos (people of German/English descent). This helped fuel discrimination and laws to limit non-Anglo immigrants.
            1. The fact that non-Anglos didn't do as well likely had less to do with intelligence and more to do with education level, the culture in which the questions were written, and test-taking skills themselves.

6. Modern tests of mental abilities
    1. There are two basic types of tests…
        1. **Achievement tests** measure how much you've learned thus far. Usually, a person must pass an achievement test to graduate from high school. This is the make sure he or she has "learned enough" to be a high school grad.
        2. **Aptitude tests** predict how you'll do in the future. The SAT and ACT are examples of an aptitude test – they predict how a person will likely do his or her first year in college.
            1. The SAT used to be called the Scholastic Aptitude Test. It correlates with IQ at a very high rate of +0.82.
    2. Psychologist **David Wechsler** made today's most common intelligence test. There are two versions…
        1. The **WAIS** for adults (Wechsler Adult Intelligence Scale).
        2. The **WISC** for children (Wechsler Intelligence Scale for Children).
        3. The Wechsler test has two main categories, verbal and performance, and is broken into 11 subtests.
            1. It gives an overall intelligence score, like the Stanford-Binet.
            2. It also gives separate scores for verbal comprehension, perceptual organization, working memory, and processing speed.
            3. These sub-scores can help identify strengths and problem areas.

7. Principles of test construction
    1. Like a 3-legged stool, there are 3 pillars that hold up good test construction – standardization, reliability, and validity.
    2. **Standardization** means that every student takes the same test under the same circumstances. If this is achieved, we can compare one person's results to everyone else's. This is what takes place in a **norm-referenced test**. (see graph at bottom of page)
        1. Usually, the group's results end up in a bell-shaped curve called a **normal curve** or a **bell curve**. The bell curve is amazingly uniform both in shape and in its natural occurrence – we don't know why, but it just happens.
        2. Look at the graph of IQ scores at the bottom of this page. We see the median IQ is 100 (also the 50th percentile is 100). The break-point scores are the standard deviations. So, at -1 standard deviation a person scored at 85. Notice the percentages. 68.2% of people scores lie within 1 standard deviation (between 85 and 115). And almost 96% score within 2 standard deviations (between 70 and 130). These percentages are amazingly stable in nature.
        3. The norms must be re-calculated every so often. Compared to the 1930s, people score much higher today. In the 30s, the average would only be 76 using today's scale.
            1. The higher IQ scores today are called the "**Flynn Effect**."
            2. As to why the higher IQs today, we simply don't know.
    3. **Reliability** means a test gives the same or very similar results every time. It's like a bathroom scale, one that is always within a pound or two is reliable. If it varies by 30 pounds, that's not reliable.
        1. There are several ways to test reliability. In essence, the test is compared to itself then its scores are correlated. If it correlates highly, it's reliable.
    4. **Validity** means that a test measures what it's supposed to measure. For instance, using a bathroom scale to measure height would not give a valid measurement. It may be reliable (it may give the same result every time), but it's not valid.
        1. **Predictive validity** is the idea that aptitude tests can accurately predict future performance. Largely, the evidence shows that they do.

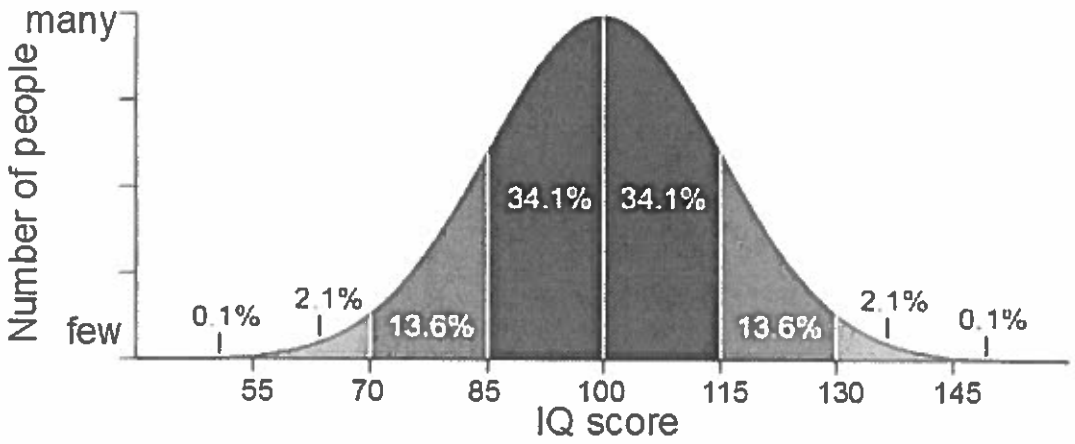
2. Still, aptitude tests are more reliable than they are valid. That is to say that given a base score, the correlation of getting the same score is higher than the correlation of future achievement.
    1. Predictive validity starts strong in the early grade school years, then fades.

8. Stability or change?
    1. The question is, "Is our intelligence the same all our life?"
    2. It's not possible right now to measure a baby's intelligence. Any "test" or observation hasn't correlated with later high IQ.
    3. By age 4, a child's intelligence test scores begin to predict later intelligence scores.
    4. After age 7, intelligence test scores grow stable.
    5. By late adolescence, these scores are *extremely* stable.
        1. Among 23,000 college students, their SAT scores (just before college) and their GRE scores (just before grad school) correlated at a very high +0.86.
        2. 542 Scots were tested for intelligence at age 11 in 1932 and again 70 years later near the year 2000. Their IQ scores correlated at a high rate of +0.66.
            1. Also, those with a high IQ had a lower chance of getting Alzheimer's.
9. Extremes of intelligence
    1. The low extreme of intelligence is below an IQ of 70. To be labeled as having an intellectual disability a person must meet two things: (1) have a low IQ and (2) have trouble to meeting the demands of taking care of one's self.
        1. 1% of Americans meet these criteria. There are 50% more males in this group. (view the chart at the bottom of this page)
        2. Intellectual disability" is the new term for "mental retardation." The terms "moron", "imbecile", and "idiot" used to be clinical terms. When they became part of a person's everyday talk, the terms were dropped because of the negative/hurtful labels placed on those intellectually disabled.
        3. Intellectual disability can be due to a known cause like **Down syndrome** (where a person has an extra chromosome) or due to unknown reasons.
        4. Care for the intellectually disabled has gone through three stages:
            1. At home – the idea was they were best at home on the farm.
            2. In a residential home – the idea was that a family should grow too close, then give the child over to a residential home; they were often ignored.
            3. Back at home – the idea is that this is where they'll be loved most and get the most normal life possible.
    2. The high extreme of intelligence is above an IQ of 135.
        1. Usually, these people do better in almost everything. Compared to others, they're healthier, well-adjusted, and academically successful.
        2. Labeling a student as "gifted" and putting that child into special "tracking" courses can be controversial.
            1. It begs the question, if one child is "gifted", then the others are therefore "not gifted." Does this create a self-fulfilling prophecy for one group to do well and one poorly?
            2. Isolating the "gifted" could also insulate them socially and hurt people-skills.
            3. Tracking could also isolate and segregate the races because minority and low-income groups are normally placed in lower academic groups.
10. Twin and adoption studies
    1. The nature-nurture argument may be strongest over intelligence. Are some people smart/dumb because they inherited those traits, or is it because of the way that they were raised? Or both?
    2. As always, to try and answer the nature-nurture controversy, we look at twins, siblings, non-related people, and the environments in which they're raised. (see chart at bottom of this page)
    3. Adopted children are also studied. Their IQs start somewhat like their adoptive parents, but grow more and more like their biological parents as time goes on.
    4. The overall conclusion is that an estimate of 70% of intelligence is due to genetics. In the case of intelligence, it seems that nature wins the nature-nurture battle.
11. Heritability
    1. **Heritability** tries to measure the variation of difference in a trait that's inherited genetically, in this case, the variation of intelligence between people that's inherited.
    2. Intelligence is estimated to have a heritability rate of 50%.
        1. This does not mean 50% of intelligence is inherited.
        2. It does mean that 50% of the difference in intelligence between people is due to heredity.
12. Environmental influences
    1. Though nature seems to win the nature-nurture battle for intelligence, the environment still matters.
    2. On rare occasions like in war-torn countries, infants get little or no interaction by adults. In such a deprived environments, their development is stunted.
        1. For example, kids in this situation had language skills that were far behind.
    3. The problem then moves to everyday society and socio-economic levels. Well-to-do families tend to raise kids in supportive environments. Low socio-economic families often raise kids in less-supportive environments. The areas of concern are…
        1. Nutrition and malnutrition
        2. An environment that stimulates the senses or not

3. Interaction or social isolation
4. Many upper-middle class parents try to jump-start their children's intellectual development. This is sometimes called the "Mozart effect." Most studies show that this kind of jump-starting is a waste of time.
5. Schooling does affect intelligence. The two interact and affect later income levels.
    1. To try to level the playing field between high and low socio-economic level kids, the Headstart Program was started in 1965. It's a preschool program for disadvantaged kids.
    2. The results of Head Start are mixed…
        1. The kids do show a higher readiness to start kindergarten.
        2. But, the gains seem to wear off by about age 8 or 9.
    3. A person's attitude and motivation also matter to a large degree. People that view their life and abilities as changeable, rather than fixed, often push themselves harder and achieve more – effort matters!

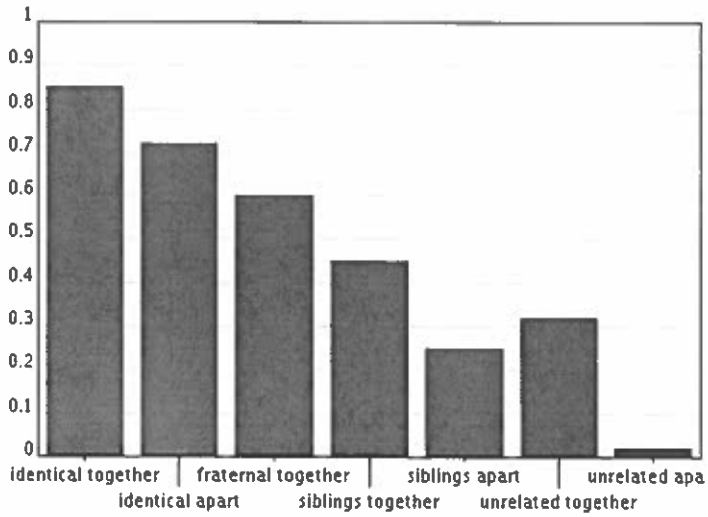
13. Group differences and intelligence test scores
    1. Gender plays a role in differing intelligence scores.
        1. Males and females are very similar in terms of intelligence. In one study, girls' average IQ was 100.6 and boys' was 100.5. In another study, girls averaged 99.9 and boys averaged 99.1.
        2. Despite being overwhelmingly similarly in intelligence scores, there some gender differences. These differences seem to "get all the press." Gender-based intelligence differences are
            1. Spelling – Females spell better.
            2. Verbal ability – Females are by far better than males.
            3. Nonverbal ability – Females are better at locating things and remembering pictures.
            4. Sensation – Females are more sensitive to touch, taste and smell.
            5. Emotion-detecting ability – Females are better at recognizing emotions of others.
            6. Math and spatial ability – The results are mixed. In many studies, the two genders perform identically. In some studies and areas of the globe, girls do better here, in others, boys do better.
                1. The difference is highlighted at the high end – among kids that score very high on the SAT math, boys outnumber girls 13 to 1.
                2. Boys are better in their spatial ability, such as the ability to rotate a shape around in their imagination.
        3. It's not correct to make blanket statements like, "Girls are better verbally, boys are better at math."
        4. Though boys' and girls' overall IQs are very similar, there are more boys than girls at both the low and high ends of the IQ scale.
    2. There are IQ score differences based on ethnicity and race.
        1. On average, the races score differently on IQ tests. And, people who score higher on IQ tests are more likely to achieve higher education and earn higher incomes.
        2. As groups in America, IQ scores are as follows:
            1. Blacks average about 86.
            2. Hispanics average about 88.
            3. Whites average about 100.
            4. Asians average about 105. They do very well on math and aptitude tests.
        3. As to why these differences occur, it goes back to nature vs. nurture.
            1. As to nature, there is no proof that one race is more or less intelligent than another.
            2. As to nurture, undoubtedly the environment affects one's education and results on IQ tests. The question is, how much?
                1. Often, blacks and Hispanics grow up in less well-off circumstances.
                2. In Asian-American cultures, parents often push their children hard to do well in school.

14. The question of bias
    1. Though it may be a mix, there are 3 possibilities as to why some races do better than others…
        1. The races are genetically different.
        2. The races are socially different in their upbringing.
        3. The tests themselves are biased for/against certain races.
    2. As to tests being biased, the tests may be written by people who've come from a typical upper-middle class background. A person who has not grown up in a similar environment may be a step behind.
        1. Those who defend the tests say that the tests are just the messengers, the measuring sticks, not the cause of the difference.
        2. Most psychologists agree today that the major aptitude tests are no longer biased.
    3. Expectations play an important role in test results too.
        1. Men and women were given a math test. Women scored lower than men, except when they were told that women usually score equal to men. In this case, when they expected to do as well as men, they did.
        2. # Black students did better when they were tested by black instructors than by white instructors. The idea is that there's a built-in expectation between the races. This is called the **stereotype threat**. The bottom line, when people think they'll do well, they tend to do better; when they think they'll do poorly, they do.



New Term	Old Term	IQ Level	Education Possible	Life Adaptation Possible
Borderline	Borderline	70-84		
Mild	Moron	50-70	6th grade maximum by late teens. Special education helpful.	Can be self-supporting socially and vocationally. May need help in stress.
Moderate	Imbecile	35-50	2nd to 4th grade by late teens. Special education necessary.	Can be semi-independent. Can labor in a sheltered job.
Severe	Imbecile	20-35	Limited speech, toilet habits.	Can learn simple tasks but requires total supervision.
Profound	Idiot	Below 20	Little or no speech, no toilet-training, unresponsive.	Requires total care.

Correlation of IQ scores by relation & environment



Relation and Environment	Approximate Correlation of IQ Scores (shows similarity of the scores)
Identical twins raised together	+0.85
Identical twins raised separately	+0.72
Fraternal twins raised together	+0.60
Siblings raised together	+0.45
Siblings raised separately	+0.25
Unrelated children raised together	+0.32
Unrelated children raised separately	+0.02

Unit 12: Abnormal Behavior

1. Introduction
    1. People love to study the abnormal. By studying abnormal psychology, the hope is to gain a better understanding of normal psychology.
    2. 450 million people worldwide are estimated to have a psychological disorder.
        1. The disorders vary by culture.
        2. All cultures have depression and schizophrenia.
    3. There is a definite "gray area" between "normal" and "abnormal." Drawing a cut-off line and between the two is not always easy.
2. Defining psychological disorders
    1. **Psychological disorders** are patterns of thoughts, feelings, and behaviors that are deviant, distressful, and dysfunctional.
    2. Notice the "3D's" of psychological disorders…
        1. Deviant – This means the behavior strays from what is normal. The norms of a society are determined by different things…
            1. Culture – one culture's norms may be another's deviance.
            2. Time period – what used to be odd may now be normal, or vice versa.
        2. Distress – Just straying from the normal doesn't make a disorder. They must also be bothered by what they do or see it as problematic.
        3. Dysfunction – The abnormal behavior must also create problems in the person's life. Whereas distress is on the inside, dysfunction sees the problem carried out in real life.
3. Understanding psychological disorders
    1. "Therapies" for psychological disorders have been very crude in the past. Things were done like caging the insane, or beating/burning/mutilating them in some way.
        1. The normal thinking was either that the person was possessed by an evil spirit or simply acting that way for attention.
    2. Philippe Pinel was a reformer who tried to replace brutality with care and loving treatment.
    3. By the 1800s, it was learned that syphilis affects the mind. This started the movement towards hospitals and away from jail cells. It also started two new approaches to psychological disorders…
        1. The **medical model** is a movement that looks for biological causes of mental disorders. It believes:
            1. Mental disorders are diagnosed based on their symptoms.
            2. Mental disorders are cured through a therapy.
        2. The **biopsychosocial approach** believes ALL behavior comes from the interaction of the body/genetics and one's background/experiences as well as our thoughts.
            1. The "bio" and the "social" parts of the name simply refer to nature and nurture.
            2. The "psycho" part of the name is what we think about things. All three dance together.
            3. Different cultures tend to have different disorders.
4. Classifying psychological disorders
    1. People to classify things to define order. For instance, we can classify animals as "reptiles" or "mammals" or "birds" based on their characteristics. But, it's tricky to classify psychological disorders. We do this mainly with the "**DSM**."
    2. The **DSM-5** is the current "disorder bible." It's the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. The DSM-5 came out in 2013 and replaced the DSM-IV-TR (which came out in 2000).
        1. The DSM-5 includes a diagnostic process and 16 clinical syndromes.
        2. It does not try to explain causes but tries to describe the disorder.
        3. The DSM-5 is structured as follows:
            1. Axis I – Is a clinical syndrome present?
                1. Disorders usually diagnosed in infancy, childhood, and adolescence
                2. Delirium, dementia, and other cognitive disorders
                3. Mental disorders due to general medical condition
                4. Substance-related disorders
                5. Schizophrenia and other psychotic disorders
                6. Mood disorders
                7. Anxiety disorders
                8. Somatoform disorders
                9. Factitious disorders (intentionally faked)
                10. Dissociative disorders
                11. Eating and sleep disorders
                12. Sexual disorders and gender identity disorder
                13. Impulse-control disorders not classified elsewhere
                14. Adjustment disorders
                15. Other conditions that may be a focus of clinical attention
            2. Axis II – Is a personality disorder or mental retardation present?

3. Axis III – Is a general medical condition, such as diabetes, hypertension, or arthritis, also present?
4. Axis IV – Are psychological or environmental problems, such as school or housing issues, also present?
5. Axis V – What is the global assessment of this person's functioning?

4. The DSM gets good and bad marks…
    1. The DSM has been praised for being rather reliable in diagnoses.
    2. The DSM has been criticized for being too broad.
        1. Almost any behavior could be stretched into being some type of "disorder."
        2. The number of categories has increased from 60 in the 1950s to 400 today.
        3. Also, the number of people diagnosed with something has increased substantially.
            1. What used to be the regular "ups and downs of life" is now "bipolar disorder."
            2. What used to be sassiness is now "oppositional defiance disorder."
            3. What used to be fidgety is now "ADHD."

5. Labeling psychological disorders
    1. Many say putting a label on a person is not right. It generates expectations for that person and puts him or her in a box.
    2. David Rosenhan did a study in 1973 on labels. He and other normal people lied and said they heard voices talking to them. They were diagnosed with disorders.
        1. The initial fact they were diagnosed might be okay. But later, the "causes" of their supposed problems were also pinpointed.
    3. In another experiment, people watched others on TV. The watchers were shown different labels for the people they were watching. Thus, the watchers drew different conclusions about the people on TV.
    4. Someone just out of prison or a mental hospital has trouble getting a job.
    5. Hollywood tends to perpetuate stereotypes too of mental disorders. A person is usually either funny, freaky, or a psychotic killer.
        1. People with mental disorders are rarely violent, but often the victims.
    6. Labels can also lead to the **self-fulfilling prophecy** where a person's expectations cause the expected result.
        1. For instance, if a teacher is told a student is "gifted" the teacher may grade more forgivingly on an essay. Thus, the student gets better grades and acts as though he or she really is gifted.
        2. Or if student A speaks to student B and labels a teacher as "mean", student B might be disrespectful to the teacher, see the teacher come down hard on student B, and thus verify student B's perception of a mean teacher.

6. Generalized anxiety disorder
    1. Introduction
        1. Everyone feels **anxiety** (worrying) at some point, like being nervous before giving a speech. But, for most people, anxiety is temporary. If it's persistent, an anxiety disorder may be present.
        2. There are five basic anxieties: (1) generalized anxiety disorder, (2) panic disorder, (3) phobias, (4) obsessive-compulsive disorder, and (5) post-traumatic stress disorder.
    2. **Generalized anxiety disorder** is worry that does not have a specific reason or a physical cause for the anxiety. The symptoms are things such as dizziness, sweating palms, heart palpitations, ringing in the ears, edginess, lack of sleep, and "the shakes."
        1. The focus of the worry may change. The person cannot explain why he/she is so edgy.
        2. Generalized anxiety disorder often goes with depression and can lead to high blood pressure.
        3. It tends to decline by about age 50.

7. Panic disorder
    1. **Panic disorder** is a sudden and paralyzing fear that something terrible is about to happen.
    2. It strikes suddenly and out-of-the blue to about 1 in 75 people. It lasts minutes.
    3. Symptoms include heart palpitations, shortness of breath, choking feelings, trembling, sweating, and dizziness.

8. Phobias
    1. **Phobias** are irrational fears that cause a person to avoid an object, activity, or situation.
    2. There are many, many phobias. There are phobias for nearly anything you can imagine.
        1. Some phobias have a natural cause, like fear of heights or snakes.
        2. Other phobias have irrational causes, like fear of the number 13.
    3. Social phobias include the fears of being evaluated by others. For instance, the fear of speaking publicly or going to parties.
    4. **Agoraphobia** is the fear of going into public places where a panic attack might begin.

9. Obsessive-compulsive disorder
    1. **Obsessive-compulsive disorder (OCD)** is an anxiety disorder with unwanted repetitive thoughts and/or actions. Everyone can become picky over certain things. But, with OCD, the pickiness begins to interfere with the person's life.
    2. OCD can become paralyzing to the point that normal living becomes impossible.
    3. OCD is more common among teens and young adults.

10. Post-traumatic stress disorder

1. **Post-traumatic stress disorder (PTSD)** is an anxiety disorder with haunting memories, nightmares, social withdrawal, jumpiness, and/or insomnia that lasts weeks after a traumatic experience.
    1. PTSD often hits soldiers after they return from the battlefield. It can also hit accident, disaster, or attack survivors.
    2. PTSD among veterans seems to be at about 1 in 6 vets showing symptoms.
2. A limbic system that's sensitive can be a cause of PTSD.
3. Identical twin studies suggest that genetics can pre-dispose a person to PTSD.
4. Among non-soldiers who experience a tragic event, about 5-10% show signs of PTSD (90-95% do not).
    1. Facing a traumatic event can also make a person stronger. Or, more exactly, it can show them how strong they can be.
    2. **Post-traumatic growth** is a new love or appreciation for things due to an extremely challenging situation. It's like the cancer patient who says he loves his family and friends even more, whereas before, he took them for granted.

11. Understanding anxiety disorders
    1. Modern psychologists have come up with two main theories as to causes of anxiety: (1) the learning perspective, and (2) the biological perspective.
    2. The **learning perspective** suggests that we learn to be anxious from past experiences.
        1. Ivan Pavlov would agree that any animal could be taught to fear anything, as long as something negative went along with it.
        2. It's likely that a person's anxiety has been conditioned to go along with an unpleasant (or traumatic) experience.
        3. Remember concepts from Pavlov and conditioning…
            1. "Stimulus generalization" is where we broaden things. A fierce dog can be generalized to a fear of all dogs.
            2. "Reinforcement" is where our fear gets supported. Maybe we see a movie with a mean dog—this reinforces our fear of dogs. Reinforcement works two ways to avoid our anxiety…
                1. We may stop doing something, like going to a park where dogs might be.
                2. We may do something, like taking an alternate walking route to avoid a home with a dog in the yard.
        4. **Observational learning** can also play a part in our anxieties because we can learn worry or fear from watching others.
            1. In one case, baby monkeys were not afraid of snakes, until they watched adult monkeys who were scared of snakes.
    3. The **biological perspective** says that our bodies may pre-dispose people to anxiety disorders.
        1. Natural selection holds the theory that people naturally hold onto the fears that helped our ancestors survive. Things such as a fear of heights or spiders help keep us safe.
        2. Genetics play a role too. Some people seem genetically prone to anxiety disorders. This has been shown in monkeys and in identical twin humans who may develop similar phobias although raised separately.
            1. One team identified 17 genes associated with anxiety disorders.
            2. Genes can also impact neurotransmitters that impact anxiety disorders.
        3. Our brains play a role too. Anxiety disorders are overly active brain areas that deal with impulse control and habitual behavior. Brain scans show an active area among people with OCD while going through certain repetitive actions.

12. Somatoform disorders
    1. **Somatoform disorders** are symptoms that take a physical or bodily form but without a physical cause – it's like thinking yourself sick.
        1. Although the cause may be "in your head," the physical effects are real.
    2. **Conversion disorder** assumes that anxiety is converted into physical symptoms. This is usually associated with Freud's time and thinking. A person might have a numb hand, but no physical cause for it to be numb.
    3. **Hypochondriasis** occurs when people take small "symptoms" and imagine dreaded diseases. A person with this goes from doctor to doctor, symptom and disease to symptom and disease.

13. Dissociative identity disorder
    1. The word "dissociative" means there is a break, split, or dissociation between two things. In psychology, **dissociative disorders** mean there's a break with a person's consciousness, memory, or identity. A person often can't tell what's real and what's not.
    2. A person with **dissociative identity disorder** (DID) has two or more distinct personalities that control his or her behavior.
        1. The personalities are totally independent – they may have their own "flavor" and even their own accent when speaking.
        2. The person claims to be unaware of each one.
    3. DID used to be called "multiple personalities" or "split personalities."

14. Understanding dissociative identity disorder
    1. Some psychologists question whether DID is legit or is made up. Nicholas Spanos led this research.
        1. They say we all act differently in different situations. That's normal.

2. They point out that the frequency of DID cases has shot up since the DSM first recognized it in the 1980s.
    1. Diagnoses went from 2 to 20,000.
    2. The number of personalities went from 3 to 12.
    3. Other cultures have much less DID than America where it's a bit of a fad.
3. The idea is that some psychologists actively seek out other personalities, and thus, they "find" them.

2. Other psychologists say DID is indeed legit. They cite…
    1. Distinct brain activity with different identities.
    2. Handedness can switch (right & left handedness).
    3. Visual acuity and eye muscles can change.
    4. Others debate the cause of DID…
        1. Psychoanalysts say it's to combat unacceptable impulses.
        2. Learning psychologists say it's been learned to reduce anxiety.
        3. Some say it's a response to traumatic experiences in the past.
3. Overall, DID is still debated as real or fake.

15. Major depressive disorder
    1. There are two main mood disorders, they are (1) major depressive disorder and (2) bipolar disorder.
    2. **Major depressive disorder** is where a person who has two or more weeks of significantly depressed moods or feelings and a lack of interest or pleasure in most activities. It's being depressed for 2+ weeks.
    3. It's totally normal to feel down or to "have the blues" for a while. To *not* feel the blues on occasion would be the abnormal.
        1. 29% of high school students said they felt so down that it affected their usual activities.
        2. 44% of college students said about the same.
        3. 13% of American adults have had a depressive disorder at some point.
        4. 5.8% of men and 9.5% of women worldwide have depression.
    4. Depression can be constructive. It stops us, makes us look inward, makes us assess what's important, and urges us to get back up and move forward.
    5. **Dysthymic disorder**, or dysthymia, is a chronic depression that's less severe than major depressive disorder.
16. Bipolar disorder
    1. **Bipolar disorder** is alternating between mania and depression.
        1. **Mania** is simply being very, very happy. It's euphoric, hyper, and very optimistic.
        2. Again, it's not uncommon to feel both mania and depression, but it is unusual to feel them often and frequently and with short intervals.
    2. Bipolar disorder, like dissociative identity, has been wildly diagnosed.
    3. During mania, a person might…
        1. Talk a lot and not like it when interrupted.
        2. Not sleep.
        3. Be sexually promiscuous.
        4. Not want to take advice from others, though they really need it for judgment, spending, and sex. Basically, they're in a great mood, are going to "run with it", and just don't care what you say about it.
    4. Mania does seem to produce creativity and free-flowing thoughts. Thus people in the arts seem more prone to bipolar disorder.
    5. Bipolar is less common than major depressive disorder, but it seems more paralyzing and disruptive.
17. Understanding mood disorders
    1. Peter Lewinshon summarized facts on depression…
        1. Depressed folks almost look at the negative (imagine that!). They're also more likely to abuse substances.
        2. Depression is common.
        3. Women are twice as likely as men to become depressed.
            1. Causes for this are genes, child abuse, self-esteem, relationship issues.
            2. Whereas women's disorders are more on the inside (depression), men's disorders are more on the outside (like alcohol abuse).
        4. Major depressive conditions usually end on their own.
            1. It's likely to come back within two years though.
        5. Stress often comes before depression.
            1. Things like the death of the loved one, losing a job, relationship issues, etc. can trigger depression.
        6. Depression seems to be hitting earlier with each new generation.
            1. In North America today, teens are 3 times more likely to have depression than their parents.
    2. There are several theories as to the causes of depression…
        1. The biological perspective of depression
            1. Genetics causes depression.
                1. This theory believes that some folks are genetically pre-disposed to depression.
                2. As always with genetics, we turn to identical twin and adoption studies.
                    1. If one twin gets depression, the chances are 1 in 2 that the other will.

2. If one twin is bipolar, the chances are 7 in 10 that the other is. This is true even for identical twins reared apart.
3. Heritability is estimated at 35 – 40%.
4. Adopted people with depression usually have a biological relative with depression.

3. The lesson here: genetics seem to matter with mood disorders.

2. The brain may be pre-disposed to depression.
1. New technology reveals brain activity during manic and depressed moods.
2. The left-front lobe seems active when in a good mood.
3. The hippocampus, which deals with emotions, can be changed by stress and affect moods.

3. Your chemical balance can affect moods.
1. Two neurotransmitters are in play with moods…
1. Norepinephrine – boosts arousal and mood – it's there when you're happy, absent when you're down.
2. Serotonin – the "happy neurotransmitter" – is absent when you're down.

2. Drugs to combat depression, like Prozac, either block reuptake or prevent neurotransmitter breakdown.
3. Exercise, like jogging, can also boost serotonin and help stop depression.

2. The social-cognitive perspective of depression
1. There's more to depression than just biology. How we feel and think about it also matters.
2. A depressed person always has negative feelings and thoughts.
1. Negative thoughts spawn more depression, which spawns more negative thoughts.
2. **Learned helplessness** can play a part too. A person has effectively concluded he/she cannot do anything about the situation, so why try?
3. Women are more inclined to "feel overwhelmed" than men.
4. People who explain their failures outside of themselves are less likely to become depressed. Someone prone to depression usually approaches things this way…
1. Stable – "The situation is stable and won't change."
2. Global – "If affects everything."
3. Internal – "The problem is because of me."

5. Optimism matters. If you're optimistic, you're less likely to get depressed.
6. Depression is more common in Western cultures where individualism is valued (your performance or failure is your own doing).
7. It's a chicken-and-egg thing: which comes first, negative thoughts then depression, or depression which gives you negative thoughts?

3. Depression makes up a vicious cycle of feeling down, acting sluggish, performing poorly, getting poor reviews, withdrawal from others, etc. which returns to feeling down again. The cycle can be labeled as…
1. Stressful experiences
2. Negative explanatory style
3. Depressed mood
4. Cognitive and behavioral changes

4. The bottom line: negative thoughts make up a disease that feeds itself.
5. The good news: this cycle can be broken! Some tips…
1. Move to a new environment (literally put yourself in a new place)
2. Turn your attention from inside to outside (don't be so arrogant as to blame yourself for everything – you're frankly not that important!).
3. Do something that you're good at, no matter how small.
4. Remember, many very famous and very successful people suffered from depression, and overcame it.

18. Symptoms of schizophrenia
1. 1 in 100 people get schizophrenia, likely the worst of disorders.
2. "Schizophrenia" literally means "split mind." Most people think of it as "split personalities" but that's wrong – "split personalities" would be dissociative identity disorder (DID). **Schizophrenia** is a split between reality and what a person thinks is real. It shows itself in 3 ways, they are…
1. Disorganized thinking
1. Thoughts and words come out in no logical order. Schizophrenics often speak in "**word salad**" – a jumble of words thrown together like tossed salad..
2. Schizophrenics cannot use "selective attention" – our normal ability to focus on the task-at-hand. Thus, they think and speak in a very scattered manner.

2. Disturbed perceptions
1. Schizophrenics often **hallucinate** - sensory perception without sensory input. They can perceive with all 5 senses something that isn't there.
2. Usually, this comes out with them speaking out loud to no one. Often, what they say is negative, insulting, or bossy.

3. **Delusions of grandeur** can occur where the person thinks he or she alone knows something big, like some type of huge conspiracy that's going on and no one else realizes it.
3. Inappropriate emotions and actions
    1. Schizophrenics often react emotionally in a totally wrong way. For instance, they may find someone's death just hilarious.
    2. Some schizophrenics go into a no-emotion state called the "flat affect."
    3. Some schizophrenics go into repetitive motions like rocking.
    4. Some schizophrenics go into "catatonia" where they remain motionless for hours, then they get agitated.
3. Needless to say, schizophrenia causes huge problems with maintaining relationships and a job.

19. The onset of schizophrenia
    1. There are some trends in schizophrenia's beginnings…
        1. Schizophrenia often begins to emerge as adulthood comes on.
        2. It hits both genders, but slightly more so to men.
        3. It can come on gradually, and often hits lower socio-economic groups hardest.
    2. There are actually 4 subtypes of schizophrenia. They are…
        1. **Paranoid schizophrenic** – The person thinks there's some grand conspiracy going on. Often they think someone is "out to get them."
        2. **Disorganized schizophrenic** – The person's speech and behavior is disorganized, or their emotions are flat or inappropriate.
        3. **Catatonic schizophrenic** – The person remains motionless for long periods, is very negative, and speaks parrot-like.
        4. **Undifferentiated schizophrenic** – The person has many of these symptoms.
        5. **Residual schizophrenic** – The person just withdraws socially after delusions and hallucinations go away.
    3. When schizophrenia comes on slowly, it's called either **chronic schizophrenia** or **process schizophrenia**.
        1. The chances of recovering from this type of schizophrenia are not good at all.
    4. When schizophrenia comes on quickly, it's called **acute schizophrenia**.
        1. The chances of recovering from this type of schizophrenia are much better.
20. Understanding schizophrenia
    1. Psychologists look to the brain in attempt to figure out schizophrenia.
        1. Schizophrenics seem to have many more dopamine receptors in their brains.
            1. Drugs that inhibit dopamine reception seem to help slow down schizophrenia.
            2. They don't stop the symptoms of withdrawal, however.
        2. Schizophrenics may have abnormal brain activity and anatomy.
            1. Brain scans show schizophrenics brains work differently from normal folks.
            2. While hallucinating, PET scans showed an increased action in…
                1. The thalamus that handles incoming sensations.
                2. The amygdala that handles fear.
            3. Schizophrenics' brains show signs of shrinkage in places.
                1. The cavities between the folds of the brain become filled with fluid and thus the brain itself is smaller.
            4. Some risk factors for schizophrenia seem to be: low birth weight, decreased oxygen at birth, and famine.
            5. If a mother has a viral infection during pregnancy, the chances rise that the child might develop schizophrenia. Even something common like the flu ups the risk.
                1. This is another reason pregnant women are urged to get a flu shot.
                2. The second trimester seems to be the especially important time period.
    2. Genetics play a role in schizophrenia.
        1. If you have a family member who's had schizophrenia, your odds go up considerably.
        2. As always when studying the impact of genetics, we look to twins and adoption studies.
            1. The conclusions with twins are that genetics matter in a big way. If one identical twin has schizophrenia, the other has about a 1 in 2 chance of getting it.
            2. For fraternal twins, it's much lower, at around a 15% chance. Lower, but still much higher than two random people. This also supports the impact of genetics.
            3. Adoptions studies show that genetics are a major factor in schizophrenia, rather than the environment in which people grow up.
        3. The Genain quadruplets (identical DNA) all have schizophrenia. The odds of four random people getting it is 1 in 100,000,000. Genetics matter!
    3. Psychological factors or "warning signs" seem to precede schizophrenia. They are…
        1. A mother with serious schizophrenia.
        2. Complications at birth, especially oxygen deprivation and low birth weight.
        3. Separation from parents.
        4. Short attention span and poor muscle coordination.
        5. Disruptive or withdrawn behavior.
        6. Emotionally unpredictable.

7. Poor interactions with others.

21. Antisocial personality disorder
    1. A **personality disorder** is a behavior that occurs in a continuous pattern, is disruptive, stubborn, and impairs a person's interactions with others.
        1. For example, a person may have **borderline personality disorder**.
            1. Symptoms here are a lack of stable relationships, emotional outbursts, impulsiveness, fear of abandonment, and suicidal behaviors.
        2. Or, a person may have a **narcissistic personality disorder**.
            1. Narcissism is exaggerating your own importance. A narcissist thinks he/she has done great things, hates any criticism, wants to be in the limelight, is very arrogant, but has no empathy for others. It's me-first and me-only.
    2. A person with **antisocial personality disorder** used to be called a "sociopath" or a "psychopath." This person is usually a male, usually starts to show signs before age 15, and begins to lie, steal, fight, or display unrestrained sexual behavior.
        1. It's a person who cannot live within the bounds of normal rules of life, and doesn't care either.
        2. An antisocial person doesn't feel sorrow or any bit of remorse or wrongdoing.
        3. These folks have no sense of conscience—no sense of right and wrong.
22. Understanding antisocial personality disorder
    1. Both nature and nurture influence a person's antisocial behavior.
    2. Men who were antisocial often had these characteristics as boys: they were impulsive, uninhibited, not concerned with social rewards, and had little worries.
    3. An antisocial person's brain operates differently too. Their frontal lobes (which halt impulsive and aggressive behavior) show less activity on a PET scan than a normal person.
    4. Several factors go into increasing a person's chances for becoming a violent criminal. These support the all-encompassing biopsychosocial approach…
        1. Genetics
        2. Risk factors at birth
        3. Poverty
        4. Childhood upbringing
23. Rates of psychological disorders
    1. It's estimated that 26% of Americans have a diagnosable mental disorder every year. The U.S. had the highest rate of mental disorders.
    2. The American estimates are…
        1. Generalized anxiety disorder - 3.1%
        2. Social phobia% - 6.8%
        3. Specific phobia - 8.7%
        4. Mood disorder - 9.5%
        5. Obsessive-compulsive disorder - 1.0%
        6. Schizophrenia - 1.1%
        7. Post-traumatic stress disorder - 3.5%
        8. Attention-deficit hyper-activity disorder - 4.1%
        9. Any mental disorder - 26.2%
    3. As far as who's at risk of mental disorders, the poor are most at risk. Their incidence of mental disorders is double the norm.
    4. Mental disorders usually start becoming apparent by early adulthood.

Unit 13: Treatment of Abnormal Behavior

1. Introduction
    1. History has had a very broad array of treatments for mental disorders from super harsh to super soft.
    2. The movement from harsh to soft treatments were pioneered by Philippe Pinel in France and Dorothea Dix in the U.S.
        1. They fought to get mental patients out of prisons and into mental hospitals now.
        2. The trend since the 1950s is to move the patients out of the mental hospitals, back home, and treat them through medication and support groups.
    3. Treatments today usually fall into one of two broad categories…
        1. **Psychotherapy** attacks learning-related disorders, like fears. Here, a trained psychologist uses psychological techniques to try to overcome the disorder. There are four main approaches within psychotherapy…
            1. Psychoanalysis
            2. Humanism
            3. Behaviorism
            4. Cognitive
        2. **Biomedical therapies** involve medication. They're used for things like schizophrenia.
        3. Psychologists in the biopsychosocial perspective may try both psychotherapy and medication. This is called an **eclectic approach**.
2. **Psychoanalysis**
    1. Sigmund Freud's ideas brought us the first psychotherapy. His techniques are used by almost no one today. Some of his ideas still exist in the **psychodynamic therapies**.
    2. A quick review of psychoanalysis…
        1. We are constantly in a struggle with ourselves. Our struggles hearken back to a childhood struggle with our parents.
        2. We do things as "grown ups" because we have repressed memories and desires and our unconscious drives us to do them.
    3. Psychoanalytic therapy tries to dig down into a person's unconscious (the part of the iceberg below the water) and root out the causes of the struggles. Then the struggles can be relieved.
        1. Freud first tried to dig into the unconscious with hypnosis, then trashed the idea.
        2. He next turned to **free association** where people speak freely and quickly. The idea is that they'll speak their unconscious and a psychoanalyst will be able to decipher it.
            1. If a person stops speaking freely, the analyst sees it as **resistance** – the person is suppressing something they don't want to surface.
        3. Freud turned to **dream analysis** and what he called the "latent content" – the hidden but symbolic meaning of things in dreams.
            1. Patients may feel strong emotions and **transfer** those onto the analyst.
    4. A weakness of psychoanalysis is that it's so subjective – it's one analyst's opinion and it can't be objectively proven.
    5. **Psychodynamic therapists** start with Freud's ideas.
        1. They agree that a person's childhood experiences are critical as well as the patient-therapist relationship.
        2. They agree that it's important to explore the patient's underlying thoughts and feelings.
        3. They differ from Freud in that they (a) may speak face-to-face, (b) meet less frequently, and (c) for a shorter time period.
    6. **Interpersonal psychotherapy** is a 12-16 session treatment that has been successful with treating depression.
        1. It tries to dig up the cause of their depression. But the real goal is to cut back the symptoms of depression.
        2. Whereas a psychodynamic therapist focuses on finding the root cause of the problem, the interpersonal psychotherapist tries to do this too, but really wants a more real result. Often the real result is improving relationships with others.
3. Humanistic therapies
    1. **Humanists** believe that people are good-at-heart and try to help people grow to reach their full potential.
        1. The humanist approach and psychoanalysis are called **insight therapies** because they both have the person look inside to figure things out.
    2. Humanist therapies differ from psychoanalysis in that humanism (1) focuses on the present instead of the past, (2) the conscious instead of the unconscious, (3) holds a person accountable for his actions instead of the unconscious, and (4) it promotes growth rather than a cure.
    3. Carl Rogers innovated **client-centered therapy** where the patient speaks and, through self-awareness, moves himself toward his own conclusion. It's "self-help". The therapist listens without judgment and with as little input as possible.
        1. Rogers encouraged therapists to show genuineness, acceptance, and empathy. In other words, be real, don't judge, and feel their pain.
        2. Rogers thought this encouraged the patients to "open up" and seek to grow and move on.

3. Rogers spoke of **active listening** where the listener echoes what's heard, restates it, then seeks clarification.
4. Rogers #1 thing was that a therapist use **unconditional positive regard** – that they listen without judging. The hints to listening…
    1. Paraphrase what you hear.
    2. Seek clarification to see if you got it right.
    3. Reflect the feelings that you're hearing/sensing.

4. Behavior therapies
    1. Behaviorists disagree that resolving unconscious conflicts or getting to know yourself will solve your mental issues. Behaviorists say you've learned these things through rewards and punishments. But, just as you've learned them, you can unlearn them too.
    2. Behaviorism got its start with Ivan Pavlov and his dogs.
        1. In behaviorism, a person (or dog), is conditioned to associated two things together.
        2. Bed-wetting was classically conditioned with being awakened by an alarm. This stopped the bed-wetting.
    3. **Counterconditioning** is where we "unlearn" something by conditioning or pairing a trigger stimulus with a new response.
        1. For example, suppose a person has acrophobia—fear of heights.
        2. There are two main types of counterconditioning…
            1. **Exposure therapy** exposes people to what they try to avoid. It tries to associate the bad thing (heights) with a good thing (like eating). Slowly, the person is moved closer to the ledge or higher up. Eventually, the height is associated with the eating.
                1. **Systematic desensitization** says you can't be worried and relaxed at the same time. So, while relaxed, you "face your fears" in small baby steps and work up to the "big fear."
                    1. The therapist trains you to use "progressive relaxation" to keep calm when you feel the first hints of anxiety.
                    2. The trick here is to take it very slowly, in baby steps.
                2. **Virtual reality exposure therapy** puts the person in virtual world where they can "face-their-fears". Results have been promising at facing fears and interacting in social virtual worlds.
            2. **Aversive conditioning** tries to condition a person to not do something. It pairs a negative result with an unwanted stimulus. Two examples…
                1. To stop nail biting, use nasty tasting nail polish. This pairs a yucky taste with nail biting.
                2. To stop drinking alcohol, put a nausea inducing drug in the drink. This pairs nausea with drinking alcohol.
                3. Aversive conditioning works, but it may be only temporary. The pairing or association may wear off. This is because cognition (thinking) steps in. We know when we've put on the nasty nail polish, we know when the drink has been drugged.
    4. **Operant conditioning** techniques can be used too. This is where the person's actions interplay with the stimulus and results (it's not just biological or automatic, as in classical conditioning).
        1. B. F. Skinner and his Skinner box pioneered this. The rat interacted with his environment—what he did as a stimulus affected the results.
        2. Essentially, "behavior modification" techniques withhold rewards until a desired behavior is done. Or, punishments are given out when an unwanted behavior is done.
            1. Rewards might be food or a "**token economy**". This is receiving tokens which can be spent for things like candy, TV time, etc. It's like earning points in a video game which can be used for various things.
            2. Critics say behavior modification means the behaviors are done just to get silly things like plastic tokens. Behaviorists say they slowly take a person off the tokens, and ask, "Their behavior is better, so where's the harm?"

5. Cognitive therapies
    1. **Cognitive therapists** start with the belief that what we think influences what we feel.
        1. In other words, what we *think* about a situation impacts what we *feel* in response to a situation.
        2. If we blame ourselves for something bad, we're likely to feel depressed. If we think it through and see something else as the cause, we don't.
    2. Aaron Beck was trained as a Freudian. He saw themes of loss, rejection, and abandonment. He tried to change this negativity through cognitive therapy.
        1. Beck's technique was to engage the patient in conversation, then gently reveal how irrational they were being. The hope was that the patient would see how irrational (stupid) they were being and change their outlook.
        2. In essence, Beck and cognitive psychologists try to logically show patients their illogical thinking.
    3. Donald Meichenbaum focused on the wording that people used. Negative wording equates to negative thoughts and thus negative feelings.

1. His conclusion was that if you talk negatively to yourself, you feel badly. But, the more positively you talk to yourself, the better you feel.

4. The **cognitive-behavioral therapy** tries to change the way people think and act. It's widely practiced. Its goals are to…
    1. Get folks to recognize their negative thinking.
    2. Change the negativity into positive thinking.
    3. Get folks to act on the new positive thoughts.
    4. Techniques included…
        1. Relabeling the bad into something else. Instead of labeling the bad thing and then dwelling on it, they re-name it and move forward.
        2. Doing something else. This re-directs the brain into other areas. PET scans support that these techniques work.

6. Group and family therapies
    1. Group therapy is the most common type of therapy—it saves therapist time and patient money.
    2. It shows patients that they are not alone and that others share their problems.
    3. Family therapy is a type of group therapy. It stresses the importance of being an individual and a member of a family.
        1. **Family therapy** sees a person not solely as an individual but as a component. It's like a spark plug as a part of an engine—both individual yet part of the whole.
        2. Usually, family-therapy seeks to help a relationship issue.
    4. Support or self-help groups usually hit on things that are hard to talk about, like alcoholism or eating disorders.
        1. The most famous support group is AA (Alcoholics Anonymous).
            1. AA uses a 12-step program. It starts with admitting dependence and seeking more help.
            2. AA's success rate is high, but so are other treatments like cognitive-behavior therapy or "motivational therapy".

7. Is psychotherapy effective?
    1. It's hard to measure the effectiveness of psychotherapy. But, three ways seem to stand out…
        1. How the patient feels about its success.
            1. The patient, or client, almost always feels that psychotherapy is effective.
            2. Still, skeptics say (1) people enter therapy in a crisis and once it's over, they feel better naturally, (2) no one wants to admit the time and money was a waste, and (3) clients tend to like their therapists on a personal level.
            3. Also, selective recall and confirmation bias means people tend to pull out the facts that support their thinking, while ignoring facts that don't.
        2. How the therapist feels about its success.
            1. Therapists, or clinicians, tend to report success too.
            2. The problem here is that the (1) feedback is usually only received from "successful" cases, and (2) patients usually leave happier than when they entered, but the cause of the improvement isn't necessarily the therapy.
        3. How much the behavior has changed.
            1. The two views above are purely subjective (patient and therapist opinions). To get an objective view, we look at behaviors.
            2. To do this, we need an experiment with control and experimental groups.
                1. In one study, a group was "treated" with psychotherapy and a control group got nothing. Both groups healed. The lesson—time is a great healer.
                2. A **meta-analysis** (a summary study of many studies to determine the bottom-line) determined that the average treated person winds up being better-off than 80% of the non-treated group. The bottom line: people *not* getting treatment are likely to improve, but those who get treatment are more likely to improve.
        4. Psychotherapy also cuts costs. It cuts down on more-expensive medical treatment.

8. The relative effectiveness of different therapies
    1. The different types of therapies all seem to yield good results. A rule of thumb—the more specific the problem, the more treatable it is. The more general the problem, the harder it is to treat.
    2. Some therapies have "specialties" though…
        1. Behavioral therapy is best for specific problems, like phobias, bed-wetting, compulsions, and marital problems.
        2. Cognitive therapies are best for depression and suicide issues.
    3. There are some "voodoo therapies" to avoid…
        1. Energy therapies – dealing with supposed invisible energy fields around a person.
        2. Recovered memory therapy – try to dig up supposed "suppressed memories."
        3. Rebirthing therapy – to re-enact the supposed trauma of birth.
        4. Facilitated communication – where an assistant touches the typing hand of an autistic child.
        5. Crisis debriefing – which forces people to re-live and verbalize traumatic events.
    4. Some people argue that if the patient said the therapy worked, then it worked.

5. The key is to rely on evidence that the therapy worked. This is called **evidence-based practice** and is encouraged by the APA (American Psychological Association).

9. Evaluating alternative therapies
    1. It's hard to nail down the effectiveness of alternative therapies because time often heals anyway.
        1. So, after a person goes through an alternative therapy and gets better, the question then is, "Was the improvement due to the therapy or simply due to time?"
    2. Scientific evidence can be assessed in two types of alternative therapies…
        1. **EMDR – Eye Movement Desensitization and Reprocessing**
            1. EMDR was developed by Francine Shapiro. It's having your eyes dart to and fro and is supposed to relieve anxiety.
            2. The person thinks of a traumatic experience, then darts his/her eyes back and forth. Shapiro reports 84% to 100% success.
            3. Skeptics say the eye movement really does nothing except that it magnifies the **placebo effect**. Thus, EMDR is effective. But, it could also be effective doing any other task that aids the placebo effect—it doesn't have to be eye movement.
        2. **Light exposure therapy**
            1. People tend to be depressed in the dark winter months. This is called "seasonal affective disorder" (SAD).
            2. As a treatment, patients were put under bright lights for a while—they tended to feel better!
            3. An experiment was done…
                1. Experimental group A got light in the morning – they had a 50+% success rate.
                2. Experimental group B got light in the evening – they had a 33% success rate.
                3. The control group got a fake "treatment" (a placebo) – they had a 30% success rate.
            4. The conclusion – morning light helps fight depression.
                1. The light exposure therapy was as effective as anti-depressant drugs or cognitive-behavioral therapy.
                2. Brain scans supported these findings as well.

10. Commonalities among psychotherapies
    1. There seem to be some common threads across therapies…
        1. Hope for demoralized people.
            1. Therapy can provide hope to someone who's going through a tough time. The thinking is, "Things are bad now, but I'm getting help, so things should get better."
            2. If nothing else, even if the treatment isn't really that good, it serves as the placebo and gets the person's self-healing process started.
        2. A new perspective.
            1. Therapy usually gives the patient some type of an explanation. The patient can then perhaps take this reasoning and go forward with a new outlook.
        3. A relationship that's trusting and caring.
            1. The client-therapist relationship is called the "therapeutic alliance" and it's crucial to success.
            2. The patient often simply needs someone who cares and shows empathy. Sometimes, we just need a friend.

11. Culture and values in psychotherapy
    1. Psychotherapy can differ by culture. For instance…
        1. Western cultures, that value individualism, see this reflected in the therapy.
        2. Eastern cultures, that value the group, and therefore me-centered therapy seems uncomfortable.
    2. Religion is another point to consider. People who are very religious tend to do better with a therapist of the same religion.
    3. It's important for a therapist to be culturally-aware of their clients.
    4. It's also important for therapists to be open about their beliefs—that way clients can "match up" with someone whom they'll be comfortable.

12. Drug therapies
    1. Since the 1950s, the use of drugs has become the most common psychological treatment by far.
    Psychopharmacology is the study of how drugs affect the mind and behavior.
        1. This means far fewer people are now in mental hospitals.
        2. It also means many who've been released, yet are unable to care for themselves, wind up homeless.
    2. A double-blind study was done to measure the effectiveness of these drugs.
        1. Half the people were given drugs, half were given a placebo (neither the patients or staff knew who got what—double-blind).
        2. The half getting the drugs wound up considerably better.
    3. **Antipsychotic drugs**
        1. It was noticed by chance that some drugs had calming effects to people with psychoses (hallucinations or delusions).
        2. So, people with schizophrenia tended to respond best to these drugs.
        3. The typical antipsychotic drug is chlorpromazine (brand name "Thorazine").

1. The molecules of this drug were like the neurotransmitter dopamine. The drug molecules occupy, and thus block, dopamine's receptor sites.
2. There can be side-effects like (a) sluggishness, (b) "the shakes" like Parkinson's where too little dopamine is the case, and in long-term use, (c) **tardive dyskinesia** where facial muscles move involuntarily.
3. Schizophrenics with apathy or withdrawal usually don't respond to Thorazine. Another drug, clozapine, affects both dopamine AND serotonin receptors. They have some positive effects in these cases.
4. Newer drugs are trying to achieve the beneficial results without the side-effects.

4. **Antianxiety drugs**
    1. Antianxiety drugs depress the central nervous system (as does alcohol). A common drug is Xanax.
    2. The good—the drug may aid the effects of exposure therapy and cut down on effects of PTSD and OCD.
    3. The bad—the drug can lead to psychologically dependence and physiological dependence. Then when the person stops taking it, symptoms can be even worse.
5. **Antidepressant drugs**
    1. Antidepressants boost a person's mood by increasing neurotransmitters serotonin or norepinephrine.
    2. A typical drug is Prozac (or Paxil or Zoloft).
        1. The good—Prozac blocks reuptake of the serotonin neurotransmitter molecule so more of them "stay in play" rather than get reabsorbed by the sending axon.
        2. The bad—side-effects can be dry mouth, weight gain, hypertension, or dizziness.
        3. Cognitive therapy helps people out of depression too. It helps to get them thinking in a new way.
        4. Aerobic exercise boosts mood too.
        5. It usually takes a month for the effects of antidepressants to kick in. But then, the question comes back up, was it just a matter of time and/or placebo?
            1. A double-blind study showed the "drug's effect" was actually 75% the "placebo effect."
            2. The medication was helpful for severely depressed, not so much for moderate depression.
6. **Mood-stabilizing medications**
    1. **Lithium** is used to level the emotional roller-coaster of people with bipolar disorder.
    2. 7 in 10 people seem to have their moods stabilized.

13. Brain stimulation
    1. **Electroconvulsive therapy (ECT)** is better known as "shock therapy" or "shock treatment."
        1. In the early days (1938), the patient was strapped down then jolted with 100 volts to the brain. Convulsions and unconsciousness followed.
        2. Nowadays, the patient is given an anesthetic and muscle relaxant, then 30 to 60 seconds of electricity. They awaken 30 minutes later, remember nothing of the treatment.
        3. ECT seems successful.
            1. 80% of depressed people who did not respond to drug therapy see significant improvement.
            2. ECT reduces thoughts of suicide.
            3. Although 4 in 10 return to depression after treatment is over, the results seem very good.
        4. Alternative neurostimulation therapies
            1. Magnetic stimulation
                1. Magnetic energy pulses are sent into the person's brain. They stimulate or dampen certain areas of the brain.
                2. This is called **repetitive transcranial magnetic stimulation (rTMS)**.
                3. The person remains awake, it's painless, and there's no memory loss or side effects.
                4. A double-blind study saw the rTMS group do 50% better than the placebo control group.
            2. Deep-brain stimulation
                1. Helen Mayberg has located a spot in the cortex that links the thinking frontal lobes with the limbic system. It's overly active in a depressed person.
                2. She implanted electrodes to stimulate these areas.
                3. 8 in 12 people that tried this seemed to have positive results.

14. **Psychosurgery**
    1. Psychosurgery removes or destroys part of the brain and is therefore irreversible, rare, and usually the last thing tried.
    2. Egas Moniz came up with the most common procedure, the **lobotomy**.
        1. The surgery took only 10 minutes and involved shocking the person into a coma, driving "icepicks" throught the eye sockets, then wiggling them to cut the connections from the frontal to emotional parts of the brain.
        2. The goal was to calm people who were uncontrollably emotional and violent.
            1. It usually did cut down on the violent emotions.
            2. It also often left the person lethargic, immature, and uncreative.

3. Since the 1950s, drugs have replaced lobotomies.
4. Today, psychosurgery is very rare. It's still used to stop seizures by cutting the nerves that cause them, or in precision MRI-guided surgery to halt extreme OCD.

15. Therapeutic lifestyle change
    1. A major theme in psychology is that both the mind and body interact with each other.
    2. Stephen Ilardi promotes **therapeutic lifestyle change**. This simply means that to change the way you feel, change the way you live. He says…
        1. People seem built for physical exercise, to be engaged with others, to be in the sunlight, and get lots of sleep (think of an Amish community). These people show little depression.
        2. But many today live on the couch, alone, in a dark room, and stay up late (think of the "gamer geek").
        3. Ilardi suggests…
            1. *Aerobic exercise* – 30 minutes three times a week.
            2. *Adequate sleep* – about 7 to 8 hours per night.
            3. *Light exposure* – about 30 minutes each morning.
            4. *Social connection* – interact with others at least twice a week.
            5. *Anti-rumination* – don't dwell on negative thoughts.
            6. *Nutritional supplements* – including daily fish oil with omega-3 fatty acids.
        4. In an experiment, 77% of the people improved from depression; only 19% of control group did.
16. Preventing psychological disorders
    1. What's better than treating a psychological disorder is to prevent from getting one.
    2. A person can build **resilience** which is strength to deal with stress and recover from adversity and thus helps fend off psychological disorders.
    3. The idea is to change the root causes of the disorders (rather than try to fix them).
    4. George Albee noted that improving a person's condition helps ward off psychological disorders. This includes *anything* that can help the person: finances, self-esteem, strengthening the family, etc.

Unit 14: Social Psychology

1. Introduction
    1. We are social animals.
    2. We are moved to love and to hate, drastically.
    3. We almost always care what others think or what others do or say.
    4. **Social psychology** is the study of how we think about, influence, and relate to others.
2. Attributing behavior to persons or to situations
    1. Fritz Heider came up with the **attribution theory** which says people measure others' behavior by either their internal disposition or the external situation that they're in.
        1. In other words, people behave due to their innate nature or because they're caught up in the situation.
        2. For example, a person may be quiet by nature, but in the right situation, may be very outgoing.
    2. The **fundamental attribution error** is that we tend to overestimate a person's natural personality and underestimate the position that they're in.
        1. An experiment with a set-up "mean or friendly" girl showed that we see behavior as being determined by one's personality, not by the situation.
        2. When we view others, it's easy to fall into the fundamental attribution error trap. Studies show that when people have the situations reversed, they better see the situation from another's point-of-view.
    3. How we interpret another's behavior has consequences—both good and/or bad.
        1. We must be cautious in interpreting another person's actions or inactions. Liberal or conservative views often serve as a lens through which people see the world.
        2. Politics comes into play when interpreting actions or inactions.
3. Attitudes and actions
    1. **Attitudes** are feelings that drive us to respond to a situation, person, or event in a certain way. Our beliefs often influence feelings.
        1. How we feel about someone or something, right or wrong, impacts the way we react to it.
    2. The **central route persuasion** is a change-of-attitude where people evaluate arguments and respond with favorable thoughts.
        1. Simply, this occurs when you weigh the evidence of something and make a rational decision.
    3. The **peripheral route persuasion** is a change-of-attitude where people are influenced by quick cues and make quick judgments.
        1. Simply, this occurs when you make a quick decision based on initial factors without really thinking about it. You decide based on a snap judgment, emotion, what's cool, popular, sexy, etc.
    4. What you hold as your attitude affects how you act.
        1. The **foot-in-the-door phenomenon** says that if a person goes along with small requests, he or she will go along with bigger requests.
            1. For instance, American prisoners in the Korean War were increasingly given rewards for "going along" with communist ideas. What started as something tiny grew to full-fledged agreement with socialism/communism.
            2. To get people to agree to a big lie, start with a small lie.
            3. What's more, once you go along, what you do starts to become what you believe. That's why many Korean War prisoners returned to the U.S. "brainwashed" and believing that socialism/communism was actually good for America.
            4. Some good news, the belief-follows-action phenomenon works not only for the bad, but for the good as well.
        2. The role that a person fills also affects his or her actions.
            1. People tend to behave in a manner that they think is appropriate for whatever role they are in.
            2. The most famous role-playing situation was the famous "**Zimbardo Prison Experiment**" done by Philip Zimbardo at Stanford in 1972.
                1. Zimbardo set up a fake prison in the basement at Stanford, then randomly assigned prisoners and guards.
                2. They role-played. Guards were given clubs and uniforms and told to keep order. Prisoners were given humiliating robes.
                3. The effect—the "guards" assumed their roles and basically abused the "prisoners". The experiment was called off after 6 days.
                4. The bottom line—we are what we do.
        3. When our attitudes and our actions don't match up, we feel tense. This is called "cognitive dissonance". To fight this tension, the **cognitive dissonance theory** tries to bring our attitudes and our actions together to relieve tension.
            1. In essence, we rationalize our actions and we make excuses for what we do.
            2. We either change our attitudes to match our actions, or vice versa. Usually, it's the attitude that's changed rather than the behavior.
            3. The good news, changing one's behavior can be relieving.
4. Conformity and obedience

1. People mimic other people's actions, as with looking up or yawning.
2. The so-called "chameleon effect" says we reflect the characteristics of those whom we're around.
3. Taking on others' feelings is called "mood linkage"—we're happy around happy people, sad around depressed people.
4. **Conformity** is changing your behavior or thinking to the group's norm.
    1. Solomon Asch did a conformity study where he asked which line was the same length as another (the answer was obvious).
    2. However, others in the group were "in on the joke" and set up one person who was not.
        1. Those "in on it" chose the right answer a couple of times, then they purposely chose an obviously wrong answer.
        2. The one person who was not "in on the joke" eventually went over to the others' wrong choice 1/3 of the time.
        3. Asch came up with conditions that strengthen conformity…
            1. Insecurity.
            2. Group must have 3+ people.
            3. The group is unanimous.
            4. Someone in the group is admired.
            5. No commitment has been made yet.
            6. Others watch one another.
            7. Your culture values social standards.
        4. The reasons that we conform are…
            1. To avoid being ostracized, which can be a serious punishment. Thus, we respond to the **normative social influence**, meaning, we adjust our behavior to that of the group's.
            2. Other people can give us information. This **informational social influence** leads us to go along with the group lest we be "left out of the loop."
        5. Robert Baron did an updated Asch experiment. His conclusion…
            1. If a person is unsure of their judgment, they'll listen and conform to others.
        6. People in Western cultures, which value individualism, are less conforming than people in Eastern cultures.
5. **Obedience** is obeying the directions of an authority figure (or someone perceived as an authority figure). The most famous/infamous obedience experiment was done by Asch's student, Stanley Milgram. It's usually just called the **Milgram Experiment** or the "Obedience to Authority Experiment."
    1. Milgram had 3 groups of people…
        1. Experimenter—was the overall boss.
        2. Learner—was to answer word pair questions.
        3. Teacher—was to "teach" word pairs and give electric shocks for incorrect answers.
    2. The Experimenter and Learner were both "in on the joke"—they knew the shocking was fake. The Teacher was left out of the loop.
        1. The teacher would start at 15 volts, then after each wrong answer, go up a notch. The electrical dial went up to 450 volts.
        2. If the teacher got nervous about shocking the Learner, the Experimenter told the Teacher to continue.
        3. Milgram's purpose was to see how far the Teacher would go (how obedient would the Teacher be)?
    3. The findings—most people (63%) went all the way to 450 volts.
    4. The Milgram Experiment is often cited as ethically wrong. Namely, it put the Teacher under considerable stress (thinking he was torturing the Learner). And, the idea of "Informed Consent" was very questionable because the Experimenter, under false pretense, tried to talk the Teacher into continuing.
6. Lessons from conformity and obedience studies…
    1. People seem driven to get along and to follow instructions. We are social animals.
    2. The foot-in-the-door effect works, as in the Milgram experiment, the shock started small then worked up. Those who resisted usually did so early on.
    3. Ordinary people are capable of terrible things when just "following orders." For instance, the Holocaust of WWII.
    4. People will follow horrible orders even more so when someone else does the nasty work.

5. Group influence
    1. **Social facilitation** is the phenomenon of better performance while someone is watching. For instance, runners run faster when competing against people than against the clock.
        1. Having others watch arouses us (it wakes us up) to the task-at-hand.
        2. Sometimes though, having others around hinders our performance. This happens when we're doing something difficult for us.
        3. What we do well, we do better when others watch.
    2. **Social loafing** is the phenomenon where people put forth less effort while in a group as compared to being on their own.

1. While in a group, we rely on the group to pick up more weight than when we have to go it alone.
2. This happens because the person feels less accountable and that his efforts won't matter much.
3. Men in individualistic cultures tend to be the highest social loafers.

3. **Deindividuation** is giving up normal restraints and giving in to the crowd.
    1. This happens when the group both arouses us and lowers our accountability (we're hyped up and feel like we can get away with something in the crowd).
    2. Deindividuation is why a normally calm person in a crowd might yell like crazy at an umpire. Sometimes this phenomenon is called "herd poisoning" because the crowd/herd poisons the mind and judgment of a normally rational person.
4. The effects of group interaction
    1. **Group polarization** is the idea that the differences between two groups will widen as time passes.
        1. For instance, the political views between two groups of college freshmen may be slight at first, but by their senior years, the gap will have widened.
        2. Talking about the issue seems to actually widen the gap. The more you talk about it, the more set in your views you become.
    2. "**Groupthink**" occurs when everyone in the group quietly goes along with the others to keep harmony, even though the idea may be unrealistic.
        1. Groupthink is fueled by overconfidence, conformity, self-justification, and group polarization.
        2. To fight groupthink, allow alternative opinions, allow experts to view the plans, and ask for possible problems.

6. Cultural influence
    1. The **culture** that we live in gets soaked up by our brains. Our culture impacts our behaviors, ideas, attitudes, values, and traditions.
        1. We pass on things from person to person.
        2. Although cultures differ, the ability to have and to pass on culture to others is universal.
    2. Different cultures have their own variations.
        1. The examples are too many, but some differences are: beachwear in different places, wearing shoes in the house or not, to greet with a handshake or kiss. Each area has its own norms—simply, what's normal.
        2. **Personal space** is the comfortable area between you and another person. North Americans and northern Europeans like wider personal spaces than Latin Americans, the French, and Arab nations.
        3. **Punctuality** differs too. North America, northern Europeans, and Japanese are time-conscious. Mediterranean, Indonesia, and Caribbean countries are more unworried about time.
            1. The effect—time-watchers see the others as charming but inefficient; laid-back countries see time-watchers as efficient but cold.
        4. Culture's **change over time** as well. Think of beachwear, what's commonly worn on the beach today definitely would not have been the norm 100 years ago.
7. The power of individuals
    1. Even though we are social animals, people have the power to do things on their own. History shows it is the power of an individual working alone who brings about great change, rather than many working as a group.
    2. Witness Gandhi who freed India using nonviolent protest or Isaac Newton who literally wrote calculus or Martin Luther who restored Christianity to its Biblical roots.
8. Prejudice
    1. **Prejudice** is to "prejudge"—to draw a conclusion prior to analyzing a situation.
        1. At times, **stereotypes** influence prejudice. Stereotypes are preconceived notions about a person or situation. They may or may not fit the actual situation. Stereotypes could be good or bad, they could be right or wrong.
        2. To **discriminate** means to draw a distinction between two things. Discrimination in and of itself is not a bad thing.
            1. When applied to people though, prejudice, stereotyping, and discrimination can be ugly.
        3. A study suggested people have prejudice based on one's name (and thus perceived race).
        4. In another example, people tend to see women as being more nurturing, sensitive, and less aggressive. This was seen in two pictures of a man. One was normal and the other was feminized. Women then chose the feminized man as being more loyal, trustworthy, and family-oriented.
        5. There are many, many examples of injustice in the world. But to be fair, it is unclear how much of this injustice is due to prejudice, and how much is due to other causes.
    2. When society yields people at the top of the socio-economic ladder (the "rich") and those at the bottom (the "poor"), certain things happen…
        1. The "rich" see themselves as having earned their position.
        2. A "blame-the-other-guy" mentality follows…
            1. The "rich" say the "poor" are where they are because they're lazy. The poor are the result of their own actions or inactions. The rich blame the poor for their low status.
            2. The "poor" see themselves as victims of the "riches'" actions, but not the result of their own actions or inactions. The poor blame the rich for their low status.
        3. The "**ingroup**" includes those on the inside of a social circle and the "**outgroup**" excludes all others. The group we're in is the ingroup, others are the outgroup.

1. What's more, we have an **ingroup bias** where we favor our own group.

3. Why are people prejudiced?
    1. Prejudice can begin with the fear of attack by others. It can also start with the **scapegoat theory**, which says people tend to look for someone on whom to place blame when things go wrong.
    2. We can also "think" our way into prejudice. People tend to simplify and categorize things in order to make sense of them. This adds to the "us-them" mentality.
    3. People are able to see differences among their own racial/ethnic group, but others are seen as if "they all look the same." This is called the **other-race effect** or the "own-race bias."
4. The **just-world phenomenon** states that good behavior is rewarded and bad behavior is punished.
    1. Hindsight bias plays into this as well. Sometimes the victims can be blamed. For instance, after 9/11, some people blamed the United States for a lack of understanding of the terrorists and hinted that the Americans therefore deserved the attacks.

9. Aggression
    1. **Aggression**, in psychology, is any physical or verbal behavior intended to hurt or destroy. It can be emotional or very calm, as long as it meets those characteristics.
    2. Aggression has biological factors built into it.
        1. Genetics lays the groundwork first. People are like different types of dogs who are more or less prone to fighting. Twin studies have backed this up. Males are more prone to aggression.
        2. Neural influences affect aggression. Neural networks in the brain that inhibit or activate aggression. Namely, the amygdala can activate aggression, and the frontal lobes are important for controlling impulses. There is no one true "hot spot" however.
        3. Biochemical influences affect aggression. Drugs and hormones can affect aggression. Violent people tend to be male, muscular, with low serotonin and high testosterone, and lower intelligence. Alcohol also increases aggression.
    3. There are psychological and social factors that play into aggression.
        1. The **frustration-aggression principle** says that when things go badly, we're more inclined to get aggressive. Simply put, we seek revenge.
            1. For example, after 9/11, most Americans sought revenge for the unprovoked actions of terrorists.
            2. People are more aggressive when they're cranky. Things like hot weather increase aggressive behavior.
            3. Aggression is more common when people have been taught that their aggression yields results.
                1. For example, terrorists continue to terrorize when they're told that their actions bring about a change in those whom they terrorize.
                2. To counter this, the victims of terrorism should remain strong and send the message that terrorism will not bring about the desired change of the terrorists.
        2. Aggression is modeled in many ways.
            1. Parents can model aggression by yelling and beating their children, rather than lovingly disciplining their child. Rather, constructive physical discipline (spanking) is calm, loving, just, and teaches a lesson for the child's good. Allowing a child to misbehave is, in fact, extremely unloving.
            2. TV and movies are ridiculously aggressive and violent. The message conveyed is clear: violence is sexy and productive.
                1. The "rape scene" and blaming-the-victim infamously comes back. The "rape myth" holds that women (being the "good girls") initially flee from a rapist, then give in, then enjoy it. Here, they say the woman deserved what she got.
            3. Pornography has negative effects in many ways—it makes one's spouse appear less attractive, it makes sexual crimes seem less severe, it makes sexual violence seem less offensive.
        3. **Social scripts** are the "screenplays", conveyed by the media and our culture, that show us how to act in situations.
            1. Youngsters who constantly see glamorized gangsta rappers denigrating women and flashing guns will mimic just that.
            2. Liberal TV shows and even cartoons constantly glamorize free and open sex, then it's accepted as okay behavior and reenacted in real-life.
        4. Video games are extremely violent. The question is, "Does this violence release aggression in a harmless way or add to aggressive behavior?"
            1. At times, people have copy-catted the violence of games to real life.
            2. Certainly, video games **desensitize** the gamer to violence. A person's head cut off? No big deal!
            3. The experimental research is clear…
                1. Violent games lead to an increase in aggressive and violent behavior.
                2. The "**cartharsis hypothesis**" is NOT supported. This is the idea that a person can use a video game as a harmless outlet to aggression ("catharsis" means to let something out, to release the "pressure" that's built up).

10. Attraction

1. We become friends to some people, fall in love with some people, but don't with others. Why?
2. To grow close to someone, people must first share a **proximity**—they must be geographically close together.
    1. Sometimes being close means we fight. Usually, it means we get along.
    2. Being close means being familiar. And, familiarity plays a big part in who we like. The bottom line—we like people with whom we're familiar and who are like us. Conversely, we distrust (and maybe dislike) people unfamiliar and unlike us.
        1. The **mere exposure effect** says that repeated exposure to novel stimuli increases how much we like it. In other words, as we get used to something, we like it more.
        2. Experiments show the more we see a person, the more attractive we find them.
        3. We like our own faces too. An experiment morphed the subject's faces with a stranger's. Not surprisingly, the subject liked the morphed face more than the stranger's.
3. Physical attractiveness matters (AKA, "hotness" matters!).
    1. After proximity, the next biggest factor that draws attraction is **physical appearance** (sorry, but it's not a "nice personality").
    2. Attractive people get more interest from the opposite sex.
    3. Attractiveness also influences people's perceptions. The good-looking are seen as healthy, happy, sensitive, successful, etc. (all things good). Attractive and well-dressed people get better jobs and earn more as well.
    4. Defense for the not-so-attractive people…
        1. Self-esteem and happiness are independent of attractiveness.
        2. Most people don't feel they are unattractive (the mere exposure effect is at work here—we're prone to like our own appearance).
        3. Different cultures, and different time periods, have different definitions of beauty. People go to extremes to alter their appearances in trying to meet the perceived definition of beauty.
            1. Across cultural boundaries though, men like young-looking women, women like men who look healthy, mature, dominant, successful.
        4. Characteristics like honesty, humor, manners, etc. are great. And, once a person gets to know you with these characteristics, they tend to start seeing you as more physically attractive.
    5. A face that is a computer composite of many faces is seen as more attractive than the faces that make it up. This is perhaps because the averaged face is symmetrical, which we like.
4. After proximity and physical appearance, **similarity**, or getting to know a person, is the next factor that plays into attraction.
    1. Do opposites or similar people usually attract? The research clearly shows that opposites do not attract. We dislike those unlike us, we like people like us. The saying, "birds of a feather flock together" is right.
    2. Friends and couples usually have these things in common: age, religion, race, education, intelligence, smoking behavior, economic level.
    3. The "reward theory of attraction" says we'll like people whose behavior is rewarding to us in some way.
        1. If we live in someone's proximity, we can enjoy their company frequently.
        2. If they're physically attractive, it's nice to be with them and may "up" our status.
        3. If they share our thoughts and feelings, they validate our thoughts and feelings.
5. Romantic love can be broken down into short-term "passionate love" and long-term "companionate love."
    1. **Passionate love** is usually brought on by arousal. Arousal can come in many forms, such as fright, aerobic exercise, eroticism, funny or crude talk.
        1. Whatever the cause of arousal, a study showed men who were aroused viewed a woman as being more attractive than men who were not aroused.
        2. Simply put, when the heart is pounding, we see a member of the opposite sex as more attractive.
    2. **Companionate love** lasts the test of time—it's steady, deep affection. Whereas passionate love yields children, companionate love yields families.
        1. Having a relationship based on **equity** is important. This is where both the man and woman help out one another.
        2. Also, **self-disclosure** is important. This is revealing our innermost desires and dreams to our spouse. To reach this, two people must spend time with one another and gradually earn one another's trust. Research shows that sharing ourselves with others binds us together.

11. Altruism
    1. **Altruism** is when we put others ahead of ourselves.
        1. The 1964 rape and murder of **Kitty Genovese** awakened social psychologists to the power of social behavior. Though 38 neighbors heard her cry, they were hesitant to call the police. This is an example on "non-altruism" because the neighbors did not want to inconvenience themselves by getting involved.
            1. The Kitty Genovese case also exemplifies the **bystander effect**. It says that, if there are several people present during an emergency, we're less likely to take action.
            2. If only one person was there, he or she usually took action.
            3. Having many people around during an emergency resulted in a "diffusion of responsibility." This is because our level of responsibility is "watered down."
        2. Other patterns of altruism show the best odds of someone helping take place when…

1. The person seems to need help.
2. The person seems similar to us.
3. We've just observed someone else being helpful.
4. We're not in a hurry.
5. We're in a small town or rural area.
6. We're feeling guilty.
7. We're not preoccupied.
8. We're in a good mood. This is one of the most consistent findings. When people are happy, they're more inclined to help.

2. Social psychologists wonder, "Why do people help others anyway?'
    1. A cold-and-calculating theory simply says that we help others if we weigh the costs and benefits and the benefits outweigh the costs. This is called either the **social exchange theory**, or "cost-benefit analysis" or "utilitarianism." Simply put, we get more out of it than we put in.
    2. There are intrinsic rewards. Helping people makes us feel good. Brain scans support this.
    3. The **reciprocity norm** says we should give help (not harm) to those who've helped us.
    4. The **social-responsibility norm** says we should help those who are in need.

12. Conflict and peacemaking
    1. **Conflict** is a perceived incompatibility of actions, goals, or ideas. It's bickering or fighting.
    2. **Social traps** occur when our self-interest leads us into lose-lose situations.
        1. Adam Smith wrote the *Wealth of Nations* in 1776. In it, he explained that the greatest economic good is achieved through capitalism, by each person pursuing his or her own self-interest.
            1. Capitalism yields the greatest common good, the best for the most people, even though social traps do occur.
            2. Other economic systems, namely communism and socialism, have been shown by history to result in elitism and class inequality, stripping of freedoms, economic stagnation, and widespread hunger.
        2. Jean Jacques Rousseau came up with the "game theory" known as the **Prisoners' Dilemma**.
            1. Imagine two criminals arrested then held in separate rooms. Under interrogation, each is given a choice, either (A) don't confess or (B) confess.
            2. If person 1 confesses, he gets off easy, especially if person 2 does not confess.
            3. If person 2 confesses, he gets off easy, especially if person 1 does not confess.
            4. What usually happens is that both people will confess (they both act in their own best interest). The best option is that *neither* confesses, but out of fear of "being slammed" by their partner, they do what's best for themselves and both confess.
        3. A real-life example of a social trap might be a person who thinks, "If I don't recycle, that's only one person not doing it." If a million others think that way, it makes a big difference.
    3. The **mirror-image perception** concept says we tend to view others as evil and untrustworthy and they see us the same way.
        1. Our negative behavior toward the other group can in turn be reflected back toward us. This creates a **self-fulfilling prophecy** where we think they don't like us, we act unfriendly, and thus, they in fact don't like us and return the unfriendly behavior.
        2. An example of this occurred when Saddam Hussein's military overran tiny and helpless Kuwait in 1990. After America showed altruism by coming to Kuwait's aid and pushing Saddam out, Hussein reciprocated a bitter hatred toward America.
    4. Contact with people whom we prior had held prejudice or dislike helps us get along. In other words, we may say we don't like someone or a certain type of people, but if we spend time with them, we can get along. For example…
        1. The races have grown much closer by being closer on a regular basis.
        2. Being around homosexuals regularly increases their acceptance by straight men and women.
        3. In other words, familiarity breeds content.
    5. **Cooperation** can lead to achieving **superordinate goals**—shared goals that cancel out differences and which can only be achieved through cooperation.
        1. For example, after 9/11, George W. Bush's approval rating shot up to 91%, the highest ever. The shared goal of America was to achieve justice for the wrong brought on by terrorists.
        2. "Rebranding" a person aids in cooperation. Whereas you used to be a "Jet" or a "Shark", if rebranded as a New Yorker, you're more likely to work together.
    6. Communication is critical.
        1. Sometimes, when communication breaks down, mediators step into the middle. They try to turn a lose-lose situation into a win-win situation.
        2. During times of crisis, communication is most-needed, but least likely to take place.
    7. **Conciliation** is overcoming disagreements and giving in to, or appeasing, another person.
        1. As a non-example, after Saddam Hussein took over tiny Kuwait, President George H. W. Bush said America would "kick Saddam's ass." Saddam said Americans will "swim in their own blood." No conciliation here.

2. Charles Osgood offered a path of conciliation called "**GRIT**" (Graduated and Reciprocated Initiatives in Tension-Reduction). The steps are…
    1. Announce mutual interests and plans to lessen tensions.
    2. Make a small conciliatory act (give in to the other side). This opens the door to reciprocity.
    3. If the enemy responds with reconciliation, that gets another conciliatory response. If the enemy responds with aggression, appropriate action is taken.
    4. In laboratories, GRIT seems promising. In real-life GRIT has not done well.
        1. Hitler was repeatedly given conciliatory responses and appeasements, notably by Neville Chamberlain, which merely encouraged his maniacal behavior.
        2. Two hard-but-true lessons are taught here by history:
            1. Politicians who naively follow the GRIT theory (by relying solely on diplomacy and sanctions) are often played as fools by bullies.
            2. Despite one's own desire to seek out the good in humanity, evil does exist and is very real. And, the evil-doer will use his counterpart's naïve desire-for-good for his own wicked advantage.