

Grandmother test

- “Birds of a feather flock together” -> “opposites attract”
- we like to rely on instincts-intuition and common sense keeps us alive
- problems with that:
 - hindsight bias-knowing what the answer is and then saying you could have predicted it
 - overconfidence-we think we know more than we do
 - perceive patterns in random events when there aren't any
- hindsight bias
 - we should be more interested in predicting rather than explaining-don't bet on a game after it already happened
 - we can come up with an explanation for anything
- overconfidence
 - think we will perform better than we actually will
 - danger when studying for exams-being familiar with something rather than knowing it (can confuse the two)
 - make excuses for the results (if only this happened, I would have been right)
- perceive patterns in random events
 - making faces in the moon-it's random but we can impose order in them

The Scientific Attitude

- 3 main components
 - 1. Curiosity-must challenge things
 - 2. Skepticism-don't believe things because someone tells you it's true, ask questions, look at things from a different perspective
 - 3. Humility-understand that you're not always going to get it right, your prediction might be wrong, a new idea might come along and take the place of your idea-go with it
 - don't impose your beliefs on the test
 - let mouse go where it wants to go

Critical Thinking

- Don't just absorb info, challenge it
- Examine assumptions
- Discern hidden values-look at who's putting forth the info
- Evaluate evidence-who did the research, where's the funding, how was the research conducted, do conclusions follow data logically
- Asses conclusions-do they make sense given evidence presented, did you only get half evidence?

- Advertisement Exercise
 - o Assumption:
 - How much energy it could use
 - How many countries
 - The fact that we need more energy
 - o Values
 - Current ways in getting energy isn't enough
 - Americans should buy American products
 - The fact that our government won't let us
 - o Evidence
 - A pie chart with the majority of Americans support it
 - Map of US with red highlights of where we're not getting the oil
 - Little sources
 - Research without appropriate techniques
 - o Conclusion
 - There is a way to tap into natural gas and oil that is environmentally sound
 - Its from America

The Scientific Method

- Theory
 - Take a whole bunch of things that seem disconnected, but same basic underlying principal can explain all of them.
 - Ex. Evolution-one theory about adaptation makes predictions about all species
- Hypotheses
 - Testable predictions
 - “If___ then___” statements
 - support, revise, or reject
 - confirmation bias-tendency to look for evidence that supports what we already believe to be true
- Operational definitions
 - Statement that defines research variables
 - Way to measure something (grades for academic achievement)
 - Different ways to define same variable-so need to tell audience what you did
 - Expand, doesn't get anywhere with same experiment over and over

Observe and Describe Behavior

- Case Study
 - In depth look at one individual
 - Hope to discover principle that can link to general population
 - Ex. HM
 - Had seizures
 - Cut band of fibers between brain
 - Damaged hippocampus
 - Now has memory loss
 - So know they assume hippocampus controls memories