The Scientific Method

Zoology 306L

Make Observations

- The first step to any research project is to make observations.
- What do you see that's interesting/unique?

Formulate a Question

- The goal of all science is to answer questions
- These questions can be How? Why? What if? or anything else

Generate a Hypothesis

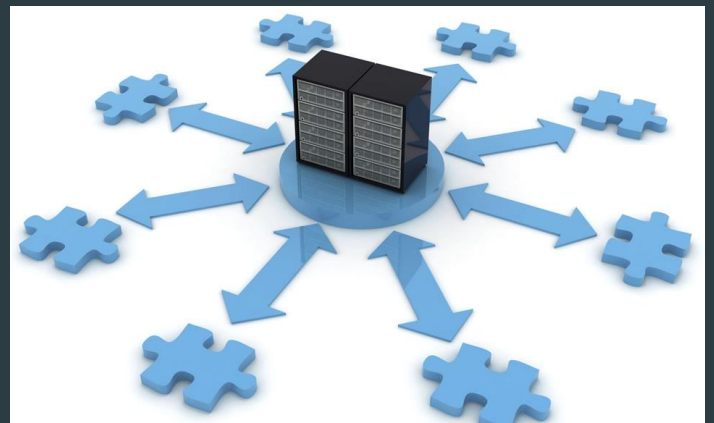
- Once you have your question, you find out background information that aids in explaining an answer
- Using this background info, you can then create your hypothesis, which is an educated guess regarding how the world works

Give Your Prediction

- Your prediction should explain the predicted results
- The prediction feeds off of the hypothesis, but the prediction should be a more specific expectation based-off your individual experiment

Collect Data

- Now that you've predicted what will occur, you can run your experiment and collect your data
- This phase includes actually determining an effective way to test your hypothesis
  - If your hypothesis is too broad, you won't be able to accurately test its validity
  - If it's too narrow, it may be easy to test, but the results won't be valuable
- Once data is collected, it is also important to analyze it to parse out the important results



Communicate

- Once you've gathered your data, the final and most crucial step is to communicate
- You can conduct as many experiments as you want, but if you don't tell anyone about them, then you haven't actually accomplished anything
- This is why scientific communication is so critical to the success of scientists.