

What is *science*?

What is the **goal** of science?

- The goal of science is to investigate and understand the natural world
- Science is an organized way of using evidence to learn about the natural world.



Thinking like a scientist...

- **Observation** of a phenomenon or problem



- **Data** is gathered from careful observation



- Quantitative data: things that can be counted
- Qualitative data: things that cannot be counted



- **Inference** is used to logically interpret data



- Inference: a conclusion reached based on evidence & reasoning



Make an observation about this cake

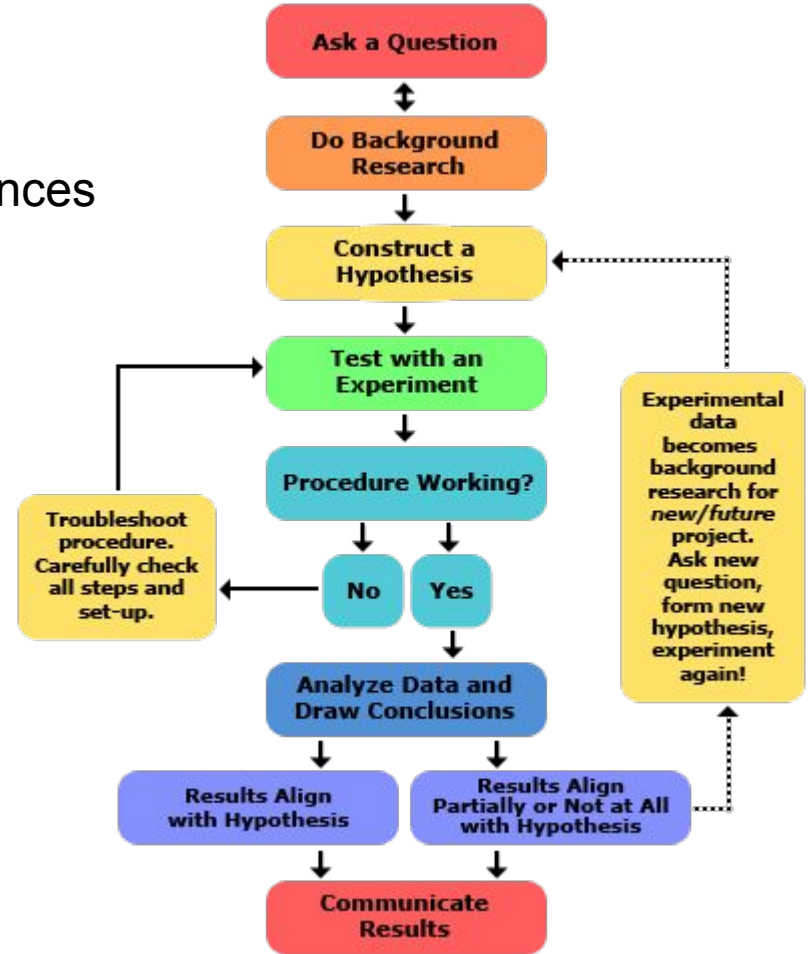
Make an inference about this cake

The Scientific Method

developed in the 17th century for natural sciences




- Question
- Hypothesis
- Experiment
- Collect Data
- Analyze Data
- Make Conclusion



Designing an experiment

Have you ever seen maggots?

Where do they come from?


 For centuries people thought that living things could arise from nonliving things.

 This was a theory called spontaneous generation.



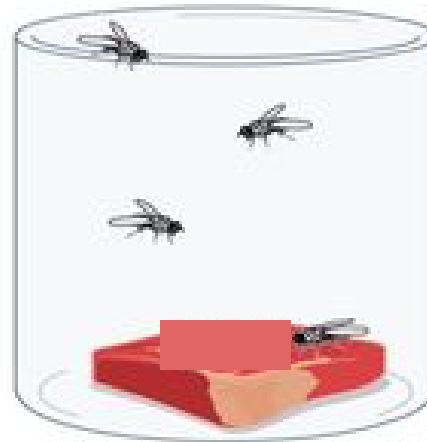
Spontaneous generation experiment by Francesco Redi

Variables: a feature that is subject to change

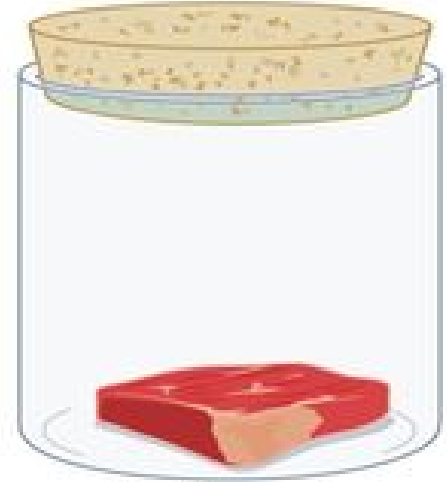
 Controlled variables: jar, type of meat, location, temperature, time

Manipulated variables: cork
keeping flies away from meat

Responding variables: whether maggots appear.



Flask unsealed



Flask sealed