



Amoeba Sisters | Video Recap

NAME: _____

Amoeba Sisters Video Recap: *Nature of Science*

1. What is the scientific method? Is there just one universal scientific method? Why or why not?

Observation

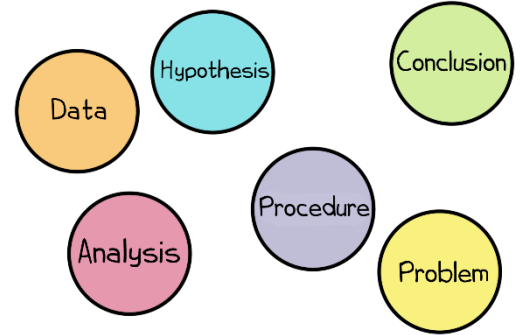
Hypothesis

Experiment

Collect Data

Analysis

Conclusion



NOTE: This is NOT always linear and there is NO universal method

Reflect on what was discussed in the video. How would you complete these general sentence stems regarding the **nature of science**?



Note: It's important to remember that this video only mentions some components of the nature of science! The below sentence stems can contain more characteristics, which we encourage you to discuss and consider.

2. Science has a major goal of:

Gaining Knowledge

3. Science can lead to the development of:

Theories and Laws

4. It's important to know that science is:

Science is for everyone!

5. Why is it important to verify the **credibility** of a source when researching a topic?

You must cite your sources



6. What does it mean if a science paper is **peer-reviewed** and why is this significant?

Authors or other scientists

evaluate the research





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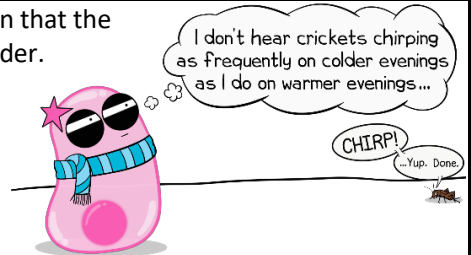
KEY

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<p>7. Observations and inferences are important in science. How would you explain the difference between the two words?</p> <hr/> <p>Inferences are logical statements based on observations. Observations use the 4 senses</p> <hr/> <hr/> <hr/> <hr/>	<p>8. Constants (“controlled variables”) and a control are easily confused by students! How would you explain the difference between the two words?</p> <hr/> <p>Control doesn’t receive the treatment</p> <hr/> <hr/> <hr/> <hr/>	<p>9. Why is a control group generally very important in an experiment?</p> <hr/> <p>increase the validity</p> <hr/> <hr/> <hr/> <hr/>
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Data Collection: Pinky’s science fair project in junior high focused on an observation that the crickets outside her window chirped less frequently when the temperature was colder.
Fun Fact: There are free “cricket chirp calculators” online you can explore, which didn’t exist freely online when Pinky was in junior high.



Consider if data was collected consisting of the **average number of cricket chirps** at different **temperatures** in her backyard.

- 10. Which variable would be an **independent variable**? temperature
- 11. Which variable would be a **dependent variable**? # crickets
- 12. Which variable (#10 or #11) would ideally be plotted on the X-axis of a graph? MIX temperature
- 13. In the collection of data, list at *least* 3 important **constants** (also known as “controlled variables”)?

- 14. Brainstorm and write at *least* 3 potential challenges or important points to consider when conducting the described data collection.

Example: Repeated trials are not mentioned, and this would be important for optimal data collection.

- A) **ethics**
- B) **science is not done**
- C) **collaborate and communicate**