

Nature of Science

Lesson 5: Observation & Personal Opinions

Today's focus

I will:

- Recognize and explain the difference between a personal opinion and a verified observation.
- Recognize and explain that science is grounded in observations that are testable, and linked to evidence.
- Understand that scientific explanations are based on observations and evidence

BRAIN



DUMP!!

<p style="text-align: center;">FACT</p> <p style="text-align: center;">List four facts in the box below</p>	<p style="text-align: center;">OPINION</p> <p style="text-align: center;">List four of your own opinions in the boxes below</p>
<p>Directions: Record "F" for Facts or "O" for Opinions</p> <p>____ 1. Red cars are the best looking.</p> <p>____ 2. Tallahassee is the capital of Florida.</p> <p>____ 3. The camping trip was boring.</p> <p>____ 4. New Year's Eve falls on December 31 every year</p>	<p>Directions: Record "O" for Observation or "I" for Inference</p> <p>____ 1. The recycle bin is always filled up by 1:00 pm each day.</p> <p>____ 2. The solar system model appears to be made of easy-to-carry Styrofoam.</p> <p>____ 3. The blouse she wore was purple.</p> <p>____ 4. Both my brothers made A's in Ms. Kruger's class, and so will I.</p>

Observations, Inferences, and Personal Opinions

During an experiment scientists use their observations as evidence. Inferences and personal opinions are not evidence.

	Observation	Inference	Opinion
Definition	<p>Information which is _____</p> <p>using the five senses (seen, heard, touched, tasted, or smelled)</p>	<p>An explanation based on the observation. It will _____ be _____.</p>	<p>What someone thinks about something. An opinion is _____</p> <p>_____</p>

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My Dad's a Space Alien - Video

First time (audio only)

What is the girl claiming?

1. _____
2. _____
3. _____
4. _____

Second time (with video playing)

What observations does she use to support her claims?

5. _____
6. _____
7. _____
8. _____

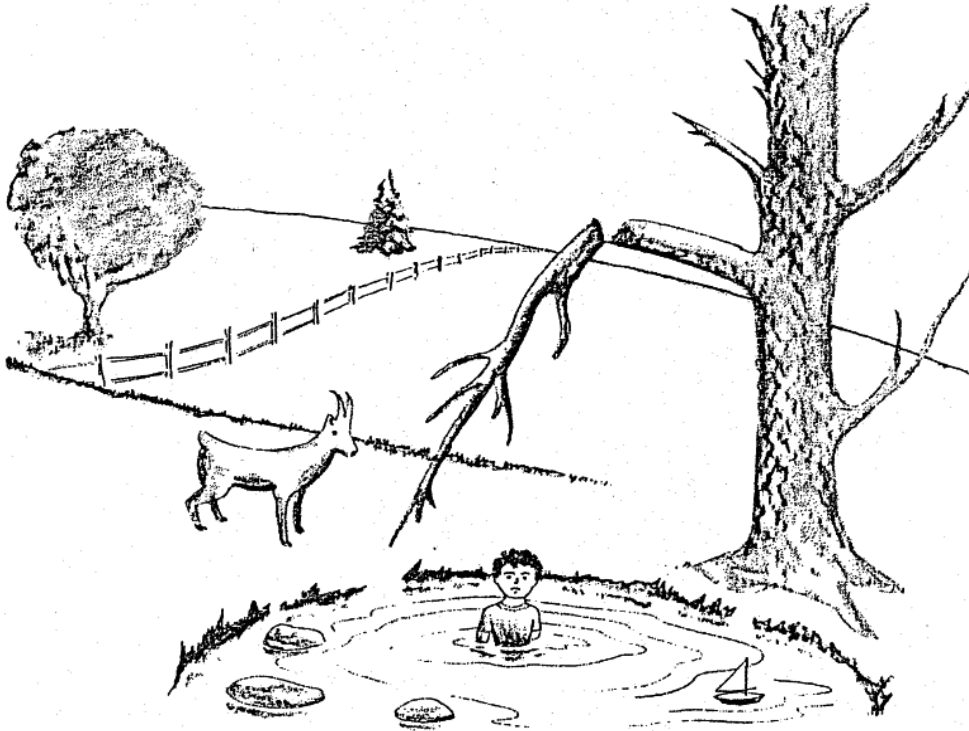
9. Her claim is based on observations she made. Is her inference a reasonable explanation based on her observations? _____

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Observations and Inferences Activity

Study the picture carefully. Identify which statements below represent **observations (O)** or **inferences (I)**.

The Goat by the Water



- _____ 1. The kid is in the water
- _____ 2. The weather is cold
- _____ 3. The tree branch is broken
- _____ 4. If the kid crawls out of the water, the goat will push him/her back in
- _____ 5. The kid fell off the branch

Make an additional inference based on this picture. Remember, inferences should be logically based on observations. Provide explanations to support the inference.

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Writing Prompt:

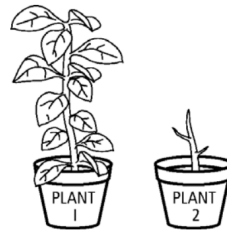
Explain in your own words what is the difference between an observation and an inference. Give an example of an observation and an inference.

Check What You Know

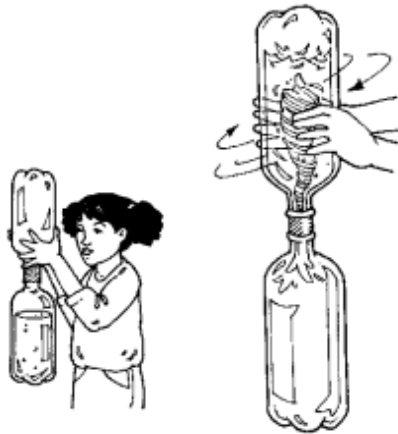
Rodrigo is investigating how sunlight affects the growth of plants. He gets two identical plants and labels them Plant 1 and Plant 2. He puts Plant 1 on a sunny windowsill. He puts Plant 2 in a dark closet. After one week, he compares the two plants and draws the picture below.

Which science skill does Rodrigo use?

- a. drawing conclusions
- b. inferring
- c. observing
- d. Predicting



- _____ 2. Kimberly made a model to show the spinning of a tornado. She filled a 2-liter soda bottle with water. Then she connected it neck-to-neck with an empty 2-liter bottle. She flipped the water-filled bottle upside down and turned it a few times.



What is the difference between this activity and an experiment?

- a. The activity is not repeatable.
- b. There are no well-defined variables.
- c. No prediction was made before the activity began.
- d. The activity is not done under controlled conditions.

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3. Greg read the following facts about sow bugs.

- A Sow bug bodies are made up of 7 segments.
- B Sow bugs are crustaceans.
- C Sow bugs have 14 legs.
- D Sow bugs avoid light.



Greg can investigate all of these statements. Greg can do an experiment to test the accuracy of one of the statements. Which statement can he test?

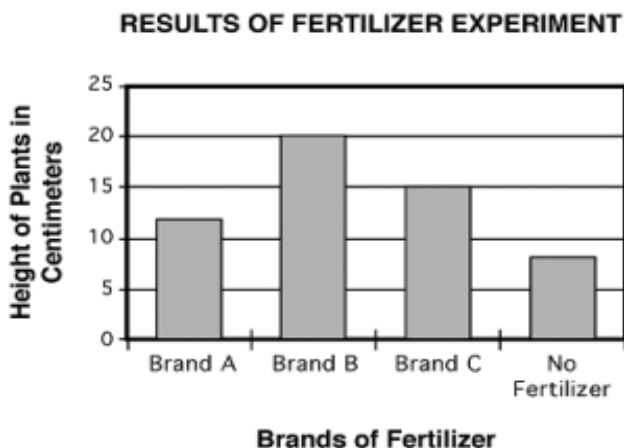
- a. Statement A
- b. Statement B
- c. Statement C
- d. Statement D

Refer to the graph below to answer questions #5-6.

Directions: Use the information and the graph below to answer the questions that follow.

Amber's fifth-grade class did an experiment with different kinds of fertilizer. They grew some plants with three different brands of fertilizer. They grew a fourth plant with no fertilizer. Here is a graph of their results:

5 Benchmark: SC.5.N.1.1



Which of the following terms **best** describes the brand of fertilizer used?

- (A) control
- (B) prediction
- (C) observation
- (D) variable

6 Benchmark: SC.5.N.1.1

What do we call the plant grown with no fertilizer?

- (F) control
- (G) prediction
- (H) observation
- (I) variable