

# Nature Of Science Study Guide- 6th Grade

Name: \_\_\_\_\_ **KEY** \_\_\_\_\_ Period \_\_\_\_\_

**Your Test is on:** \_\_\_\_\_

**For the following questions, indicate observation, inference and/or prediction.**

1. **Observation** You get home from school to see that there are cookie crumbs on the floor and your little sister has chocolate on her face.
2. **Inference** You accuse your little sister of eating all of the cookies.
3. **Inference/Prediction** Since you studied for this test, you will get an A.
4. **Observation** Vanessa had blue streaks in her hair today.
5. **Inference** I really like Katy Perry, so I will probably like Taylor Swift, too.
6. **Inference/Prediction** If he continues to eat pizza like that, he will gain twenty pounds in the next year.
7. **Observation** My dog sheds her hair in summer.
8. **Inference** Shedding probably makes her feel much cooler.
9. **Observation** My father is sixty-five and drives a Cadillac.
10. **Prediction** I am so clumsy, if I go rollerblading, I will probably fall down.
11. **Inference** If I change my socks, then my feet won't stink.
12. **Observation** That pink flamingo is 5 feet six inches tall.
13. **Inference** I saw grey clouds in the sky. I think it is going to rain.
14. **Observation** The Jolly Green Giant smells like green beans.
15. **Inference** I saw little brown pellets on the floor last night. We must have mouse in the house.

## Scenario #1:

Homer notices that his shower is covered in a strange green slime. His friend Barney tells him that coconut juice will get rid of the green slime. Homer decides to check this out by spraying half of the shower with coconut juice. He sprays the other half of the shower with water. After 3 days of "treatment" there is no change in the appearance of the green slime on either side of the shower

Identify the:

1. Independent Variable: The treatment/ what he sprayed the shower with/the coconut juice
2. Dependent Variable: If the slime went away/ the outcome of the treatment
3. What is a hypothesis Homer can write about his observation? If I spray the shower with coconut juice then the green slime will go away because This will vary by student knowledge

## Scenario # 2

Bart believes that mice exposed to microwaves will become extra strong (maybe he's been reading too much Radioactive Man). He decides to perform this experiment.

He places 10 mice in a microwave for 10 seconds. He places another 10 mice in a microwave for 5 seconds.

Lastly, he has 10 mice that have not been put in the microwave.

For his test he placed a heavy block of wood in front of the mouse food. He counted how many mice could move the block of wood away from the food. Below is a chart with his findings.

Time in microwave    Number of mice that pushed the block away

10 seconds	8
5 seconds	7
0 seconds	7

Identify the:

1. Independent Variable: the mice being microwaved
2. Dependent Variable: How strong the mice will be / the strength of the mice
3. Control: The mice who were not placed in the microwave

Put the following steps of the scientific method in the proper order.

<u>6</u>	Share your results with others	<u>2</u>	Ask Questions/Identify a Problem
<u>1</u>	Make observations	<u>5</u>	Arrive at a conclusion
<u>3</u>	State a hypothesis	<u>4</u>	Test the hypothesis

### Scenario #3:

Smithers thinks that a special juice will increase the productivity of workers. He creates three groups of 50 workers each and assigns each group the same task, to staple sets of papers.

Group 1 drinks 100mL of the special juice while they work.

Group 2 drinks 50mL of the special juice while they work.

Group 3 is not given the special juice while they work.

After an hour, Smithers counts how many sets of papers each group stapled. He made the data table below.

Number of sets of paper stapled

Group 1 1,030

Group 2 1,700

Group 3 2,113

1. Hypothesis: If the workers drink the special juice they will become more productive at work- Answers will vary
2. Dependent Variable: How productive the workers are after drinking the juice / how many sets of papers each group stapled
3. Independent Variable: The treatment/ the special juice
4. Constants/Control: The number of workers in each group, the work they are doing, the time in which productivity is checked

Match the following terms with the correct definition.

- |          |                         |  |
|----------|-------------------------|--|
| <u>B</u> | 1. Hypothesis           | A. Someone else completing an experiment   |
| <u>E</u> | 2. Control/Constant     | B. An educated guess about the solution to a problem written as an If, then statement        |
| <u>G</u> | 3. Dependent Variable   | C. One person doing the experiment several times   |
| <u>J</u> | 4. Experiment           | D. A judgment based on the results of an experiment  |
| <u>D</u> | 5. Conclusion           | E. Used to show that the result of an experiment is really due to the condition being tested |
| <u>H</u> | 6. Data                 | F. The factor that is manipulated during an experiment                                       |
| <u>F</u> | 7. Independent Variable | G. The response that is measured in an experiment  |
| <u>C</u> | 8. Repetition           | H. Observations & measurements recorded  |
| <u>A</u> | 8. Replication          | J. Organized process to test a hypothesis  |