

Name Key Date \_\_\_\_\_ Per. \_\_\_\_\_

## Variables Scavenger Hunt

**Directions:** Find the Fact Cards (in any order) and fill in the missing words.

Start here: How do scientists create experiments?

- All experiments are designed to be controlled.

Controlled experiments contain two groups:

1. Experimental
2. Control

### Experimental Group

- Is the group of subjects that are being tested on.
- This group does receive the variable.

### Control Group

- Is the group of subjects that is used to compare to.
- This group does NOT receive the variable.
- Constant: things that remain the same in an experiment

The control is the normal (or average) condition.

1. Experiments are a great way to observe Cause and effect relationships.
2. By conducting an experiment, you are problem solving and looking for Answers.
3. When planning an experiment, you must always consider your variables.
4. In science, a variable is something that can be changed, controlled, or measured.
5. There are 3 types of scientific variables.
  - Independent (the cause)
  - Dependent (the effect)
  - Controlled (the constants)

6. The independent variable is what you are going to change and test.
7. When you test an independent variable, you collect data by recording what happened.
8. An experiment can only have one independent variable. This means that you should only change one factor at a time so that your results are valid.
9. Valid means accurate and reliable.
10. The dependent variable is what you measure or observe.
11. In a cause and effect relationship, the dependent variable is the effect.
12. Controlled variables (constants) are the constant factors that do not change when conducting an experiment. For example, if you are comparing the growth of two different plants to see which one grows taller the amount of water and sunlight they each receive should be the same.
13. Independent variable example:  
If you are testing 2 different battery brands to see which one lasts longer, your independent variable is the brand of battery because you are using 2 brands.  
different
14. Dependent variable example:  
If you are testing 2 different battery brands to see which one lasts longer, your dependent variable is the Amount of time it takes to use up the batteries, because it depends on the brand.
15. Controlled variables example:  
If you are testing 2 different battery brands to see which one lasts longer, you should test them both in the same kind of device, such as a flashlight.
16. The control group is used for comparison.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Answer Sheet

Start Here: Does warm water or cold water dissolve salt faster? Which is the independent variable?

Temperature of water

1. Which brand of laundry detergent works better to remove grass stains? Which is the independent variable?

Brand of detergent

2. Do tree frogs jump farther than blue dart frogs? Which is the dependent variable?

Distance jumped

3. Do sunflowers grow taller in direct sunlight or partial sunlight? Which is the dependent variable?

Height of sunflowers

4. Does the amount of water in a pot affect how fast it boils? Which is a controlled variable? <sup>constant</sup>

Temperature of stove

5. Which type of ball rolls down a 3-foot ramp the fastest? Which is the independent variable?

Type of ball

6. Does warm water or cold water dissolve salt faster? Which is the dependent variable?

Speed that salt dissolves

7. Which brand of laundry detergent works better to remove grass stains? Which is a controlled <sup>constants</sup> variable?

Type of clothing

8. Do tree frogs jump farther than blue dart frogs? Which is the independent variable?

Type of frog

9. Do tree frogs jump farther than blue dart frogs? Which is a controlled variable? <sup>constants</sup>

Jumping conditions

10. Does the amount of water in a pot affect how fast it boils? Which is the dependent variable?

How fast the water boils

11. Do sunflowers grow taller in direct sunlight or partial sunlight? Which is a controlled variable? <sup>constants</sup>

Type of flower

12. Which type of ball rolls down a 3-foot ramp the fastest? Which is a controlled variable? <sup>constants</sup>

Ramp height

13. Do sunflowers grow taller in direct sunlight or partial sunlight? Which is the independent variable?

Amount of sunlight

14. Does warm water or cold water dissolve salt faster? Which is a controlled variable? <sup>constants</sup>

Amount of water

15. Which type of ball rolls down a 3-foot ramp the fastest? Which is the dependent variable?

Speed ball rolls

16. Will adding Miracle Grow fertilizer make my tomato plant grow taller?

Which is the control group? <sup>Normal, average condition</sup>

Tomatoes not given miracle grow