

Variables Scavenger Hunt ANSWER KEY

Start Here Start Here: How do scientists create experiments?

- All experiments are designed to be controlled.

Controlled experiments contain two groups: **1. Control Group** **2. Experimental Group**

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

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.
 - a. **Independent** (the cause) b. **Dependent** (the effect) c. **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 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 **different** brands.
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**.