

Please use the following resources to learn about designing your own experiments!

Watch this Video: <https://www.youtube.com/watch?v=BXFU86GNmrg>

Answer these questions:

- What is a variable?
- Why should we only change one variable at a time?
- How do we know if our test was successful?

Activities: Follow these directions to experiment with variables.

You will need:

<ul style="list-style-type: none"> • Paper • Pencil • Marker or crayon 	<ul style="list-style-type: none"> • Ruler • Ball 	<ul style="list-style-type: none"> • Paper • Tape • Lab Partner
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1. This experiment is best outside but you can do it inside with adult permission.
2. Use the paper and marker to make a target. (see picture)
3. Tape the target to a wall or a tree.
4. You and your partner write down a hypothesis about who would be better at hitting the target and why.
5. You and your lab partner should take turns throwing the ball at the target for a total of 10 times each.
 - a. After each throw, use your ruler to measure how close to the target the ball landed.
 - b. On the paper, keep track of each person's throw by noting the distance from the target under the player's name.



Your name	Lab partner's name

6. Add up each person's 10 distance-from-the-target measurements to get a total score.

7. To help analyse the data you need to think about the variables.
 - a. Make a list of all the things that are different about you and your partner.
 - i. height, weight, age, eye color, etc
 - b. Circle the variable (thing that was different) that may be responsible for you and your partner's different scores.

Hint: How can you continue the experiment and prove that the difference you chose is the variable that led to your different scores?

Make observations & use Claims, Evidence, and Reasoning!

1. **Claim:** If an experiment has too many variables, it's hard to analyze the results.
 - **Evidence:**

 - **Reasoning:**

2. **Claim:** Some variables in an experiment are not important and don't impact the results.
 - **Evidence:**

 - **Reasoning:**