

## Choosing Your Question or Hypothesis

Once you've selected a topic and narrowed your search to a single question to investigate, the final steps are making sure that the question is in a testable form.

### Is My Question Testable?

Once you have a list of broad questions, think about how you can rephrase the question to make it testable. For example, instead of asking, "What makes a person an adult?" You may want to ask, "How do eighth graders compare to adults?" Little changes like these can make a big difference. Remember to be as specific as you can. These examples below show how to turn your interests into testable questions:

### Examples of Science Questions:

How does the cool down routine affect how long it takes for the heart to return to normal after exercise? How does light affect the rate a plant makes starch? What is the best insulator to keep ice from melting? Which method of cooking destroys the most bacteria?

<i>How can plants be protected against pests?</i>	becomes	<i>Can companion planting protect beans from beetles?</i>
<i>How does weather change?</i>	becomes	<i>Can observing cloud formations predict the weather that follows?</i>
<i>How does sickness affect people?</i>	becomes	<i>Can taking cold medicine influence the rate of recovery from the common cold?</i>
<i>How can cars travel faster and farther?</i>	becomes	<i>Can changing the design and materials of a vehicle influence the speed and distance it can travel?</i>

Keep in mind that the results of your experiment may not agree with your hypothesis. If your results do not meet your expectations, it may indicate you have discovered something new and unexpected!

Whether the results of your experiment agree or disagree with your hypothesis it is always important to think deeply about what other variables that you may not have controlled, which might influence the outcome of your experiment.

The boundaries between science and engineering projects are not always clear. Scientists often engineer tools to do their work, while engineers often use scientific practices to help them design their products. Much of what we often call "computer science" is actually engineering—programmers creating new products. Your project may fall in the gray area between science and engineering, and that's OK. Many projects can and should use science and engineering practices.

**However, if the objective of your project is to invent a new device, procedure, computer program, or algorithm, then it makes sense to follow the computer science or engineering design and invention processes.**