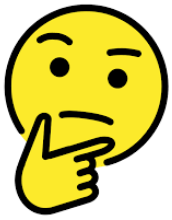
Name:

Testable Questions and Hypotheses



The key difference between a *non-testable* question and a *testable* question is that testable questions are always about changing one factor (variable) to see what the effect is on another variable.

A non-testable question can lead to a scientific report that uses known information to answer and explain the question.

A testable question leads to an investigation, or experiment, that is designed to find the answer.

Non-testable Questions	Testable Questions
How do plants grow?	How does changing the amount of water affect the growth of tomatoes?
What makes something sink or float?	Does changing the amount of salt in the water affect a paper clip's ability to float?
How do rockets work?	How does changing the shape of a rocket's fins affect its ability to fly?
How does the sun heat up water?	Does the salinity of water affect its ability to absorb thermal energy from the Sun?

Look at the following questions. Categorize them as **testable** or **non-testable**. Then, change **two** of the non-testable questions into testable questions.

1. Do larger or smaller seeds grow prettier flowers?

2. Why does doing your homework help your grades?

3. Which planet is the most interesting one to study?

4. Which pill design - tablet, caplet, or capsule - will dissolve faster?

5. What makes a plant grow bigger?

6. Will the amount of water increase plant height?

7. Will the type of fertilizer affect the number of fruits produced by the plant?

8. Does the size of the pot affect the number of roots a plant will grow?

9. How do pine trees reproduce?

10. What is the effect of color on where a fly lands?

The **hypothesis** is the answer to a testable question. A good hypothesis:

- ➔ is a statement that describes the change made and its effect.
- ➔ is written as an "if, then" statement - "If (change), then (effect)."
- ➔ is testable, a.k.a. measurable - you can measure both what you do and what happens.
- ➔ uses words like 'increase' or 'decrease'

Take the following testable questions and write a hypothesis for each.

1. How does temperature affect the time it takes for mold to grow on bread?

2. What effect does studying with music have on student test scores?