

Hypotheses

What is a hypothesis?

A **hypothesis** is a possible answer to a scientific question. You base a hypothesis on observations you make and information you gather. For example, you may have observed that an asphalt driveway feels hotter than a concrete sidewalk on a sunny summer day. Your hypothesis might be: Dark-colored

objects absorb more sunlight and get hotter than light-colored objects.

A hypothesis must be testable. An experiment is used to test a hypothesis. The results of the experiment help you to decide if your hypothesis is correct.

Read these investigations:

1. McKenna had 10 identical iron nails. She painted five of the nails and left the others unpainted. She put all the nails in a plastic tray and placed the tray outdoors. She observed the nails each day. After 3 days, all the unpainted nails had rust on them, but no painted nails showed signs of rusting. On day 30, rust began to show through the paint on two of the painted nails. Five days later, all of the painted nails showed signs of rusting.

2. Hector had four identical cans. He painted two cans black and two cans white. He filled each can with 200 mL of water. He then recorded the temperature of the water in each can before putting the cans in a sunny place. The water temperature in each can was measured and recorded every 20 minutes for 2 hours. For each measurement, the temperature of the water in the black cans was always a few degrees higher than the temperature of the water in the white cans.

3. Brianna filled three 50-mL beakers with 10 mL of water. She then cut a 5-cm square from three brands of paper towels with different thicknesses. She put one square into each beaker. After 10 minutes, Brianna poured the water from the first beaker into a graduated cylinder and recorded its volume. She repeated this step for the remaining two beakers. Her measurements showed that the smallest volume of water was collected from the beaker that contained the thickest sheet of paper towel.

Show What You Know

Write a possible hypothesis for each investigation above.

1. _____
2. _____
3. _____