



Natural and Man-Made Fibers

Grade Levels: 4-9

Background

Our clothes are made out of different materials. “Natural” fibers and fabrics come from plants or animals. For example, cotton is a plant, and silk comes from the cocoons of silkworms. Some fabrics are called “man-made” or “synthetic” because man produces them from chemicals. For example, polyester is made from a petroleum product. Even our fashion choices are related to energy!

Vocabulary

- deteriorate—to become worse, break apart , to decay
- decompose—to rot, to separate into original elements

Question

Do natural fibers decompose faster than man-made fibers?

Possible Hypothesis

Natural fibers will decompose faster/slower than man-made fibers.

Materials

- Old 100% cotton t-shirt (natural)
- Old nylon stocking or tights (synthetic)
- Old wool sock or yarn (natural)
- Old acrylic or polyester sweater (synthetic)
- Plot of soil
- Water
- Glass jar with lid

Procedure

1. Cut three four-inch squares from each material.
2. Bury one square of each material, making sure you mark the spot where they are buried.
3. Put squares of each material in a jar, fill it with water, and put a lid on it. Place the jar inside in a sunny place.
4. Place the third set of squares in a dark place where they will not be disturbed.
5. After one month, remove the samples from the ground and the jar. Examine the squares and record your observations.

Analysis and Conclusion

Which fibers deteriorated? Which environment made the materials deteriorate more quickly? Can you find out why?

