LEARNING HOW TO HYPOTHESIZE

GENERAL SCIENCE / EASY LEVEL

Introduction

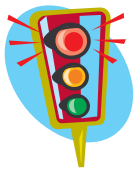
The physical *properties* of unknown objects can help you determine what they are. In this activity, you will examine 10 uncommon objects secretly chosen by an adult and be able to form a *hypothesis* about the object.

Time Needed

20 minutes

What You Need

- an adult
- 10 uncommon objects chosen by the adult (they must be real!), e.g., a scarf clip, child-safe outlet cover, etc.
- masking tape
- pencil



Safety Precautions

You need an adult for this experiment. The adult should not choose any sharp objects. Remember not to put any of the objects in your mouth.

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What You Do

1. Ask an adult to gather 10 uncommon objects.
2. Use masking tape to label the objects 1 through 10.
3. Examine each object carefully.
4. Write two physical properties of each object on the data table.
5. Predict what each object is or is used for. This is your hypothesis.
6. Write your hypotheses on the data table.
7. Read the hypothesis for each object to the adult. If your answer is correct, circle that number. If it is incorrect, ask what it really is, and write that next to the data table.

Data Table		
Physical properties		**Hypothesis**
1		
2		
3		
4		
5		

Data Table *(continued)*	
Physical properties	**Hypothesis**
6	
7	
8	
9	
10	

Observations

1. How did you come up with your hypothesis for each object?
2. Why do scientists use a hypothesis when they are trying to solve a problem?
3. How many of your hypotheses were correct?

1.0 SAFETY GUIDELINES

GENERAL

- Always obtain your teacher's permission for experiments performed at school, and your parent's permission for experiments performed at home, before attempting any experiment.
- Read all instructions for an experiment several times before starting the experiment, and follow the directions exactly as they appear in this volume.
- If an experiment requires adult supervision, do not perform the experiment unless you have an adult supervising you the entire time you are performing the experiment.
- Wash your hands before the start of and after each experiment you perform.
- Keep your work area clean.
- Never eat or drink while performing a lab experiment. Never taste a substance used in an experiment unless you are told that it is safe to do so.
- Be aware of the location of safety equipment you may need in an emergency, such as running water, an eyewash if you are at school, and a fire extinguisher.
- If you are going outside, make sure you have permission to go from your teacher and parent. Take a buddy with you, and dress appropriately for the weather. Make sure you or someone who accompanies you is familiar with the area, and bring along a first-aid kit in case of an emergency.
- Never look directly into the sun.

CHEMICAL SAFETY

- Always wear goggles when working with chemicals, such as acids and bases, and near heat sources like flames. If at all possible, avoid wearing contact lenses when working with chemicals.
- If any substance gets into your eyes, notify an adult (e.g., your teacher or parent) immediately, and flush your eyes with running water for at least 15 or more minutes. Do not mix chemicals unless you are told to do so by a teacher or parent.

- Never touch, taste, or smell chemicals unless instructed to do so.
- Keep chemicals in closed containers when they are not in use.
- Dispose of all used chemicals properly. Do not pour any chemicals or solids down the drain unless instructed to do so.
- Use safety gloves and a plastic apron when handling chemicals. If any chemicals spill on your skin, rinse the affected area with running water for at least 10 minutes, and notify your teacher or parent immediately.
- Take precautions to avoid spilling chemicals. If a chemical spills on any surface, notify your teacher or parent immediately to assist with clean-up.
- Exercise caution when using sharp instruments such as knives or scissors. Always cut away from yourself, not toward yourself. If you cut yourself, notify your teacher or parent immediately.

GLASSWARE

- Clean glassware when you are finished with the experiment.
- Be careful when using glassware. If a piece of glassware breaks, have an adult assist you in clean-up to avoid injuries from broken glass. Never use broken or damaged glassware.

FIRE SAFETY

- Do not heat glassware that is not completely dry. Do not pick up hot glassware without heat-resistant gloves or tongs.
- When heating glassware, keep it away from yourself and from others.
- Do not heat anything unless instructed to do so by a teacher or parent.
- Do not heat substances in a closed container.
- After an experiment, make sure that all heating sources are off and that all flames have been put out.
- Do not reach across such heating sources like flames.

- If you have long hair, tie it back, out of the way. Do not wear clothing with loose sleeves, scarves, bows, ties, or anything else that may hang into a fire. Do not wear long earrings.

ELECTRICAL SAFETY

- Do not touch electrical equipment when your hands are wet.
- Do not plug many electrical devices into one outlet or use an extension cord.