

Activity 2.1 Form and Function

Introduction

We have learned that matter is anything that has mass and takes up space. Things in the natural world such as plants and flowers are matter. Human-made objects are also matter.

In the PLTW Launch module Materials Science: Properties of Matter, you learned that matter can be described by what we see and feel. Two properties of matter you know about are color and texture.

Color is one way that objects appear different (brown, red, yellow, blue, etc.) because of the light that the object reflects.

Texture is the way something feels when we touch it with our skin. It might feel scratchy, soft, bumpy, rough, smooth, or squishy.

Another way to describe an object is by its **form** and **function**.

Form includes the shapes and lines that make up the object.

Function is the purpose of the object, or what the object is used for.

In this activity you will describe the color, texture, form, and function of one natural and one human-made object.

Equipment

- Launch Log
- iPad® tablet
- Silk or real flower, 1 per pair
- Kitchen utensil, 1 per pair

Procedure

Part 1: Observing a Natural Object

1. Look at the flower and think about these questions:
 - What colors do you see?
 - How does the object feel?
 - How would you describe the form, or shape, to someone who could not see or touch the flower?
 - What do you think is the function, or purpose, of the flower?
2. In your Launch Log, draw the flower and color it.

Part 2: Observing a Human-Made Object

3. The flower is found in nature. Now you will look at a human-made object, a kitchen utensil such as a wooden spoon or metal spatula.
4. Look at the utensil and think about these questions:
 - What colors do you see?
 - How does the object feel?
 - How would you describe the form, or shape, to someone who could not see or touch the kitchen utensil?
 - What do you think is the function, or purpose, of the kitchen utensil?
5. In your Launch Log, draw the utensil and color it.

Part 3: Using Nature in Design

6. Think about different ways people use flowers and kitchen utensils to meet their needs or wants. Discuss your ideas with your partner or class.
7. Engineers and designers often look to nature when designing or improving objects to meet a human need or want.
8. Follow your teacher's directions to view the presentation on using nature in design.
9. Look again at your flower and kitchen utensil and consider the following questions:
 - What human-made objects could be inspired by the form or function of a flower?
 - What natural objects could have inspired the form or function of the kitchen utensil?
10. Follow your teacher's directions to return the objects.

Conclusion Questions

1. Think about a human-made object that has the same form or function as something in nature. Describe both the human-made and natural objects and explain why their form or functions are the same.

2. Think about something that you could design to make catching a ball or hanging up your jacket easier. What object in nature could help you with your design?