

Grade Level: 3-5

Its Great to be Different

Pre-Lesson

Time Allotment

50 minutes

Materials

Per Group:

- Paper or plastic cup
- Medical tape (optional)

Per student:

- Pencil
- "What is an Adaptation?" worksheet

Advance Preparation

Make copies of the "What is an Adaptation?" worksheet, one for each student.

Lesson Objectives

Students will be able to:

- Define the four vocabulary terms below.
- List 3-4 reasons why adaptations are beneficial.
- Describe at least one adaptation that may not be useful in every environment.

Sunshine State Standards for Late Elementary

Category:

Name of Standard: XX.X.0.0.0

Vocabulary

Adaptation	Physical Adaptation
Opposable thumbs	Behavioral Adaptation

Background Information

Adaptations are features that all living organisms possess. Adaptations allow organisms to survive and reproduce within a specific environment. They are generally **physical adaptations**, such as body parts, or **behavioral adaptations**.

One example of a physical adaptation in humans is our brain. Compared to other animals our brain is highly complex and capable of solving difficult problems. Another adaptation we possess is the **opposable thumb**. By combining the two adaptations humans have been able to achieve monumental tasks, such as building and using tools and creating complex machines.

We share some adaptations with other animals. Our lungs are an adaptation that allow us to breathe air. Our heart is an adaptation that allows us to circulate blood through our bodies. Many animals on our planet also have these adaptations.

Animals are not the only life forms that possess adaptations. Plants, bacteria and fungi also have an assortment of adaptations. For example, leaves are an adaptation shared by plants that allow them to convert energy from the sun.

Behavioral adaptations usually need a physical adaptation to function. A baby crying for its mother is a good example. Both the baby's cry and the mother's response are adaptations. The crying is a survival adaptation, and caretaking is a reproductive adaptation.

Some adaptations can only function in a specific habitat. For example, gills are great for animals in the water, but cease to function once they are exposed to air. Likewise a bear's warm fur is useful in cold climates, but in the desert heat the bear would most likely succumb to heat stroke.

In this lesson students will learn what adaptations are and, through a hands-on

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activity and a work sheet, learn that not all adaptations are useful in all environments.

In the hands-on activity students will attempt to pick up and manipulate objects with and without using their thumb. Students will then complete a worksheet to learn where the adaptations of a beetle may and may not be useful.

Initial Discussion

1. Explain the word “adaptation” to the class making sure they understand that adaptations may be a physical feature (body part) or behavior.
2. Starting with opposable thumbs, brainstorm adaptations that humans possess. Ask the students to give examples of other animals that share some of the adaptations.
3. Brainstorm adaptations that fish possess that allow them to live underwater. Ask the students if fish have any adaptations that would allow them to live on land.

Hands-On Activity

4. Ask each student to take out a pencil and a piece of paper. Have the students divide the paper in half.
5. Draw a basic shape or object, such as a circle or a tree, on the board and ask the students to draw the same image on half of the paper.
6. Now explain to the students that they will be drawing the same image on the other side, but without using their thumb to hold the pencil. Gently tape their thumb to their hand or have the students hold the pencil without their thumb.

7. Students should see that it is much more difficult to hold and maneuver a pencil without using their thumbs.
8. Divide the class into small groups. Hand a cup to each group and ask them to take turns picking up the cup without using their thumbs. Discuss the results with the class.
9. Distribute the worksheet and, with students working alone, in pairs or as a group, read the first page.
10. Working alone or in pairs, the students should decide if the beetle can survive in a desert, in a coral reef or in a back yard based on the beetle’s adaptations.

Relate Activity to Concept

11. Discuss the answers with the class:
 - a. Desert – the beetle could survive because it can use its adaptations to get food, water and shelter from the cactus. It can also collect water in the morning from dew.
 - b. Coral Reef – the beetle could not survive in the coral reef because it is not adapted for breathing underwater.
 - c. Back Yard – the beetle could survive because it can use its adaptations to get food, water and shelter from the grass. It can also collect water from morning dew.

Assessment

Collect worksheets for grading.

NAME _____

What is an adaptation?

An **adaptation** can be a body part or a behavior. Adaptations are important because they allow an animal to find or gather food and water, protect itself or do other tasks that help the animal survive in its habitat. For example, take a look at these pictures:



Branch



Monkey



Camel



Owl

Two of these animals can grab a branch. One cannot. Why? Can you find what allows the animals to hold the branch? If so, you've found their adaptation! One animal is not adapted for climbing trees. Which is it? Where might this animal live instead?

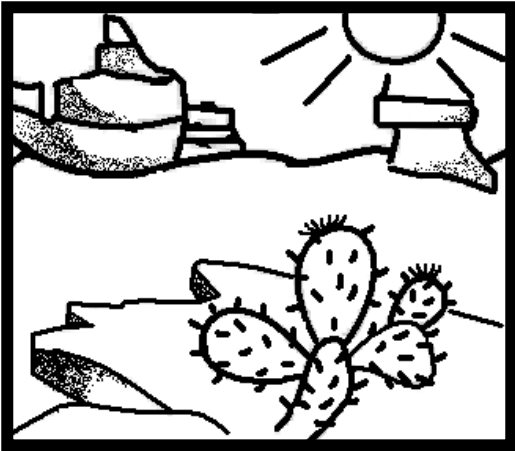
As you can see, some adaptations make it hard or impossible for an animal to survive away from its habitat. Other adaptations, however, can be used in two very different habitats.

Examine the beetle below and read about its adaptations. Then look at the habitats on the next page. Would this animal's adaptations allow it to survive in the other habitats? Write your answer in the space provided.



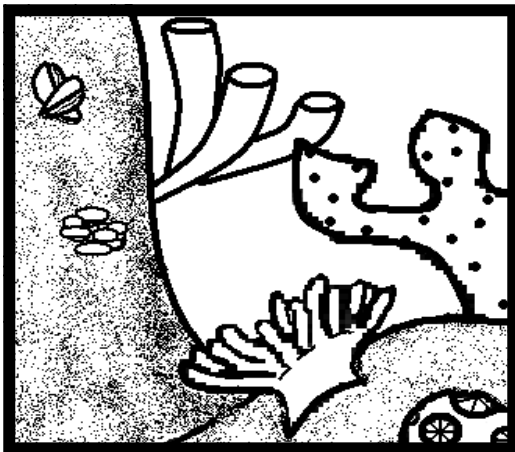
Beetle's Adaptations:

- Breathes air
- Obtains water from the plants it eats or from morning dew
- Uses pincers to eat plants
- Uses antenna for smelling food
- Sticky, pointed toes for walking and climbing
- Wings
- Green camouflage to hide from predators



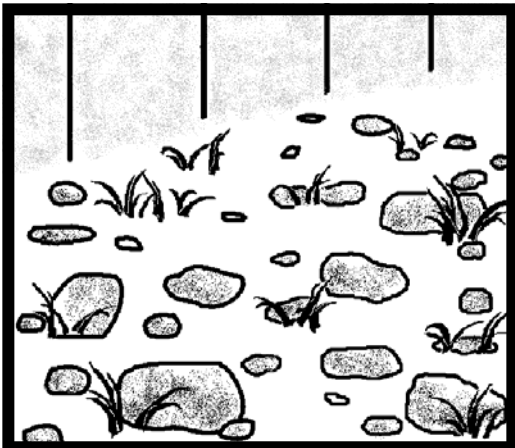
Desert

Would the beetle be able to survive in the desert?
Why or why not?



Coral Reef

Would the beetle be able to survive in the coral
reef? Why or why not?



Back Yard

Would the beetle be able to survive in the yard?
Why or why not?
