

Chapter 1
Plant Adaptations



Would a scientist say that a rock has adaptations? Why or why not?



 **Read the key points. When you finish, check the box.**

Key Points: What is an Adaptation?

What do the sharp spines of a cactus, the fuzz on a dandelion, and the stinky smell of a corpse flower have in common? They are all examples of plant adaptations.

An **adaptation** is a trait that helps a living thing survive in its environment. For example, the sharp spines of a cactus prevent the cactus from being eaten by animals. The fuzz on a dandelion helps the plant spread its seeds. Even the powerful odor of the Titan Arum, or corpse flower, helps the species survive. The rotten smell attracts beetles and flies, which pollinate the plant.



cactus



dandelion



Titan Arum

Adaptations are one reason why there are such a wide variety of plants and animals on Earth. Each species of plant or animal has its own set of adaptations.

 **Complete the exercise.**

Test your knowledge

(1) Which of the following is the best definition of an adaptation?

- A. It is a skill a living thing develops after birth.
- B. It is how a living thing reproduces.
- C. It is a trait that helps a living thing survive in its environment.
- D. It is the way a living thing interacts with its environment.

Ans.

(2) Which of these traits is least likely to be an adaptation in plants?

- A. the spines on a cactus
- B. the number of petals a flower has
- C. the fuzz on a dandelion
- D. the bright color of flowers to attract bees

Ans.

Chapter 1 Plant Adaptations



What are some other plant adaptations you can think of? Do you think all adaptations are visible to people?



 Read the key points below. When you finish, check the box.

Key Points: Seed Adaptations

When farmers or gardeners plant seeds, they are careful to plant them in a good spot. The young plants will need sunlight, water, and enough space to grow. But what happens to seeds in the wild, when there isn't anyone to plant them? This is where adaptations come in. Adaptations often allow plant **seeds** to travel and spread out. That way, at least some of the seeds are likely to end up in a good place to grow.



Here are some of the different ways that seeds can travel, thanks to their unique adaptations.

Animals: Plants have developed a few ways to move their seeds long distances with the help of animals. One example is a seed surrounded by a fruit, berry, or nut. When an animal eats the berry, the seeds in it will pass through the animal undigested. Then, they are released in the animal's droppings in another location. Other plants have developed a different way of using animals to move their seeds. Some seed pods have hooks or spines on the outside that get stuck to an animal's fur and are moved to a new location. Sweetgum seeds are an example of this adaptation.

Wind: Seeds of some plants have structures that catch the wind. Each dandelion seed is attached to a structure that works like a parachute. This structure is made up of

about 100 tiny, feathery strands which help the seed get carried by the wind. Another example is how the two "wings" on a maple seed cause the falling seed to spin rapidly in the air. This spinning lets the seed travel farther than it would if it dropped straight down from the parent tree.

Exploding seed pod: Some plants have developed seed pods that "explode" when they are touched or when they dry out. This sends seeds shooting far away from the parent plant. Impatiens and geraniums are plants with this type of seed adaptation.

Water: Some plants produce seeds that float in water. Coconuts can travel long distances on the ocean from land to land. Some plants that tend to grow near streams, like foxgloves, also have this adaptation.

 Complete the exercise.

Test your knowledge

Determine how the seeds are transported to new places. Choose the correct answer from below.

A: wind B: animals C: exploding pods D: water

(1) walnut



Ans.

(2) impatiens



Ans.

(3) maple tree seeds



Ans.

(4) blackberries



Ans.

(5) cotton



Ans.

(6) coconut



Ans.

 Use the word box below to fill in the blanks and review key vocabulary.

Review the Key Points

An is a trait that helps a living thing survive in its environment. For example, the sharp spines of a cactus prevent the cactus from being eaten by animals. The fuzz on a dandelion helps the plant spread its seeds. Even the powerful odor of the Titan Arum, or corpse flower, helps the species survive. The rotten smell attracts beetles and flies, which pollinate the plant.

Adaptations are one reason why there are such a wide variety of plants and animals on Earth. Each species of plant or animal has its own set of adaptations.

Adaptations in plants are closely related to their , the area where a person,

animal, or plant lives and grows.

When farmers or gardeners plant seeds, they are careful to plant them in a good spot. The young plants will need sunlight, water, and enough space to grow. But what happens to seeds in the wild, when there isn't anyone to plant them? This is where adaptations come in. Adaptations often allow plant seeds to travel and spread out. That way, at least some of the are likely to end up in a good place to grow.

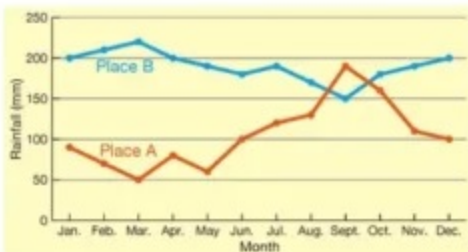
Wind, , exploding seed pods, and water are some of the different ways that seeds can travel, thanks to their unique adaptations.

seeds / adaptation / animals / environment

Complete the exercise.

Math Mission

The amount of rainfall in an area can affect what type of adaptations a plant develops. The following graphs show rainfall in Place A and Place B.



- (1) What is the amount of rainfall in March at Place A?

Ans.

 mm

- (2) Which place has more rainfall in September?

Ans.

- (3) In which place would plants adapted to a rainy environment grow better?

Ans.

Plant Adaptations



Read the mission. Then, draw and evaluate your solution.

The Mission

Based on what you've learned about seed adaptations, imagine a new type of seed. The seed should have one or more adaptations that help it travel a long way from its parent plant.



Design

Draw or write about your solution below.

Evaluate

Have you ever seen a seed similar to the seed you imagined? If so, what kind of seed was it? If not, do you think a seed like the one you imagined could actually survive and grow? Why or why not?