

**The Toughest Thing on Earth!**  
**Adaptations of Desert Plants**  
**Resource Guide**  
**Grades 6-8**

**Using What we Already Know:**

Have students choose two of the following questions to answer. Students should write 2-3 complete sentences to answer 2 of the three following questions, and be prepared to share responses with the class.

1. Would you rather be a plant or an animal living in the desert? Explain your answer.
2. Why might root systems of desert plants be either extremely long or very shallow?
3. Using what you know about photosynthesis, what would expect leaves to be like on desert plants? Explain your answer.

**Student Information:**

Desert plants have had to develop extraordinary ways to survive in the harsh and unforgiving environment. For instance, the cacti and other plants have wax-like coatings on their green stems or leaves to slow evaporation and save water. Grasses have dense, shallow root systems that intercept water as soon as a rain falls. The desert shrubs may have small leaves to slow evaporation and save water, and they may have root systems that reach deep for underground moisture. Some desert plants produce hard-coated seeds that might lie in dry soil for years, waiting for the right combination of conditions necessary for them to sprout.

**Vocabulary:**

**root** – supports the plant and brings water and nutrients to the plant from the soil

**fibrous root system** – made up of many thin, branched roots

**taproot system** – one large root with small thin roots growing from it

**stomates** – tiny holes in a leaf through which carbon dioxide enter the plant, and oxygen and water leave the plant

**transpiration** – in plants, loss of water to the air

**photosynthesis** – food-making process in plants

**Xerophytes** – (cactus) plants that have special means of storing and conserving water by having few or no leaves, which reduces transpiration

**Phreatophytes** - plants that have extremely long roots, allowing them to acquire moisture at or near the water table

**Perennials** – plants that survive by becoming dormant during dry periods, then springing to life when water becomes available

**Activity 1: Describe adaptations in your own words.**

1. In the box beside each plant, reword the adaptation(s) it uses for survival.



Cacti, for instance, the prickly pears, have leaves that have evolved into spines, which help minimize water loss by evaporation and screen the plant from the sun



Desert shrubs typically have small leaves, protective thorns, multiple branches, disagreeable smells and tastes, and extensive root systems, all adaptations to the arid environment.

In your own words, describe some adaptations used for survival by:

Century plant



Joshua Tree



## **Create a plant**

Use what you have learned today to create a plant that can survive in the desert. Draw and label your plant. Write a paragraph that includes:

- Plant's name
- Description of where it lives (for example: in isolation or around other plants, on flat or uneven land etc.)
- Structures that allow it to get water and nutrients
- Structures that allow it to conduct photosynthesis
- Structures that allow it to reproduce
- Include any other details such as color, size, etc.

## **Teacher Websites:**

Along the Way transcript on adaptation of desert plants  
<http://www.alongtheway.org/plant/plant.html>

Examples of desert plants and their specific adaptations  
[http://www.desertusa.com/food\\_chain\\_k12/kids\\_3.html](http://www.desertusa.com/food_chain_k12/kids_3.html)

More pictures of desert plants  
<http://www.desertusa.com/flora.html>