# Desert Plant Adaptations

**Teacher**:

**Grade Level:** 3rd-6th

**Time:** 1 hour (or three 20-minute parts)

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| **Next Generation Science Standards:** | **3-LS3-2 & 3-LS4-2.** Use evidence to support the explanation that traits can be influenced by the environment and variations in characteristics among individuals of the same species may provide advantages in surviving.<br>**3-LS4-3.** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.<br>**4-LS1-1**. Construct an argument that plants/animals have internal/external structures that support survival, growth, behavior, and reproduction. |
| **Enduring Understandings:** | Species can change over time in response to changes in environmental conditions through adaptation by natural selection acting over generations. |
| **Content Objective:** | Students will identify Sonoran Desert plants and their distinct adaptations using evidence from the garden. |

| **Vocabulary** | **Materials** |
|---|---|
| Adaptation(s) | Desert Plant Adaptations Worksheet<br>Pencils<br>Clipboards (if available)<br>Cut/laminated Adaptation Cards from the Arizona-Sonora Desert Museum:<br>https://www.desertmuseum.org/center/edu/docs/4-12_ex_adapt_into_previsit.pdf |

**Seasonality**: This lesson plan will work well throughout the year, though the worksheet may need to be revised for each individual school.

| Monsoon | Autumn | Winter | Spring | Dry Summer |
|---|---|---|---|---|
| July-Sept. | Oct.-Nov. | Dec.-Feb. | Mar.-Apr. | May-June |

**Engage:** Guiding Question: Can anyone name a Sonoran Desert plant or animal? Classroom share-out. We will be playing a Sonoran Desert plant and animal game! Each student will get a plant, animal, or descriptive card. The goal is to match one picture with one description. Hand out cards so that there are an even amount of plant/animal pictures and descriptions. Ask students to read their card and move around the room to find their card's match. Once students think they have their match, check their answers and have them sit down. Students will share their matches with the group.

**Explore:** Guiding Question: Did you notice a theme to these cards? What did you discover about your plant or animal? What is the purpose of _____for your plant or animal? Discuss.

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**Explain:** Use this discussion as a jumping off point to introduce the term ***adaptation***: *a change or the process of change by which an organism or species becomes better suited to its environment*. Use examples from the adaptation cards to further explain, and ask students to share any experiences and insight they may have about plant and animal adaptations. Give students the *Desert Plant Adaptations Worksheet* (instructions on sheet) to explore in the garden.

**Elaborate:** Regroup with students after they have completed the worksheet. Go around the room asking them to share their responses to the worksheet (evaluate). Guiding Question: What do you now know about the _____plant's adaptation to the Sonoran Desert? Do you think that is the *only* adaptation it has made? How have people adapted and survived in the Sonoran Desert?

**Evaluate**: Have students create and draw their own animal or plant with its own adaptations for desert survival. Have them share their creations with each other to see if others can figure out the creature's adaptations.

# Desert Plant Adaptations

**PLANT ADAPTATIONS for DESERT SURVIVAL** Name:_____ Date_____

Desert plants have had to evolve over time in order to survive the high temperatures and low precipitation that make deserts a uniquely challenging environment for living things. The strategies plants have incorporated to survive in the desert are called **adaptations**.

**Desert Plant Adaptations**

A **taproot** allows the tree to access water deep underground

A **waxy coating** on leaves prevents water loss through transpiration by sealing water inside

**Spines or fuzz** act like sunscreen, protecting the plant's exterior surfaces from the sun

**Ridges or pleats** allow the plant to expand to hold water AND they keep one side of the ridge shady

**Leaflets** allow the plant to lose heat efficiently through surface area, decreasing water loss

**Shallow roots** allow a plant to take advantage of even small amounts of precipitation

**Drought deciduous** plants can lose their leaves so they need less water to survive

**Storing water inside** allows plants to survive long periods of drought

A shape that **funnels water to its center** directs water to where it can be absorbed by the roots

**Name the Plants**

Mesquite tree
Palo Verde tree
Barrel Cactus
Saguaro
Creosote Bush
Prickly Pear Cactus
Ocotillo
Cholla Cactus
Agave
Hedgehog Cactus
Jojoba
Baja Fairy Duster
Organ Pipe Cactus
Ironwood Tree

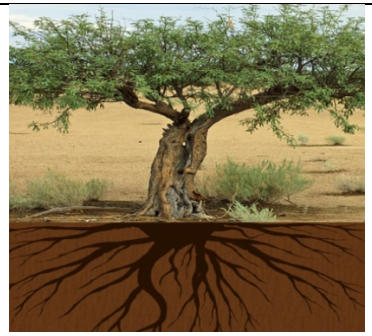
# Desert Plant Adaptations

| Find a plant that…… | Draw it | Adaptation does what? | Name the plant(s) |
|---|---|---|---|
|  funnels water to center | | | |
|  is covered in spines | | | |
|  has ridges or pleats | | | |

# Desert Plant Adaptations

| Find a plant that…… | Draw it | Adaptation does what? | Name the plant(s) |
|---|---|---|---|
|  has a waxy / fuzzy coating | | | |
|   stores water inside | | | |
|  is drought deciduous | | | |

# Desert Plant Adaptations

| Find a plant that…… | Draw it | Adaptation does what? | Name the plant(s) |
|---|---|---|---|
|  has leaflets | | | |
|  has a tap root | | | |
|  has shallow roots | | | |