



Title: How To Grow a Cactus Indoors

Grade: Pre K-2

Subjects: Science

Time: 30-40 minute class session along with daily cultivation of cactus

Objectives:

- Students will be able to...
 - Identify and describe the similarities and differences among cacti plants as relates to physical structure, growth, change, and movement.
 - Explain that all plants have basic needs and identify the specific needs of cacti plants.
 - Differentiate between natural and man-made habitats and explain how both can support plant life (dish garden vs. desert habitat).
 - Identify and organize events in their proper sequence.
- Please click [here](#) to view both the creative artwork for this great lesson and the downloadable PDF.

Standards:

- **Science Standard 5:** Understand the structure and function of cells and organisms.
 - **Benchmark # 1:** Know the basic needs of plants and animals (e.g., air, water, nutrients, sunlight/food shelter).
 - **Benchmark # 2:** Know that plants and animals have features that help them live in different environments.
- **Science Standard 6:** Understand relationships among organisms and their physical environment.
 - **Benchmark # 2:** Know that living things are found almost everywhere in the world and that distinct environments support the life of different types of plants and animals.
- **Science Standard 12:** Understand the nature of scientific inquiry.
 - **Benchmark # 1:** Know learning can come from careful observation and simple experiments.

Materials:

- Pictures of cacti
- 10" shallow dish or bowl
- Soil formulated for growing
- Cactus or soil/sand
- Gravel
- Five or six small cacti (Choose varying heights and textures.)
- Spoon
- Copies of How to Grow a Cactus Worksheet (provided below)

Overview:

There are thousands of varieties of cacti, most native to the American continents. All, but the very largest of the species, make suitable indoor plants. Cacti plants need very little attention, which makes them easy plants to care for, once one is familiar with their basic needs.

Cacti grow naturally in arid climates, where the sun is strong, and the rainfall is at a minimum. Therefore, ample sunlight (approximately 4-6 hours a day) and well-drained soil are two of the most important requirements for growing cacti indoors. While water is also essential for growth, as a general rule of thumb, it is advisable to keep watering to a minimum. Water cacti once every two weeks or when dry. Too little water is preferable to too much water.

Most cacti have succulent stems, which mean they have little to no woody tissue. The inside of the stem serves as a reservoir for water storage and the tough exterior provides a barrier against evaporation. The



spines, believed to have once evolved from leaves, protect the plant from being eaten by most animal species and can make them difficult to handle. It is wise to wear rubber gloves or use tongs to grasp the plants when transplanting. While all varieties of cacti flower, the blooms usually last for only for a short time. This minimizes the chance of evaporation that can take place through the thin, soft petals. Cacti have long, shallow root systems that soak up surface water and transport it for storage in the stem.

Cacti are a good food source. Insects, birds and small animals build nests in cacti and eat the flowers and stems. People grind the seeds of cacti into meal, or eat the fruits and scraped fleshy pads either cooked or raw. Cacti are rich in calcium and vitamin C, as well as containing some Vitamin Bs, beta carotene and iron.

Kid's Speak:

Cactus plants are easy to grow, which makes them the perfect indoor plant. Cactus plants grow naturally where the weather is dry and there is very little rain. They like lots of sunshine. If growing a cactus plant indoors, place it on a windowsill where it will receive 4-6 hours of sunlight a day and don't water it too often. Water a cactus once every two weeks or when it is dry.

There are many different kinds of cactus plants, but they all have the same basic parts. Cactus plants have long roots that soak up water. The water moves up the stem and is stored there until the plant needs it, when the weather is dry. Cactus plants do not have leaves, but they do have spines. The spines can be sharp and pointy or prickly. They protect the plant from being eaten by animals. The flowers of a cactus can be white, yellow, red, orange or purple, but the flowers only last for a short while. If they were to bloom for a long time the water the cactus saves in its stems would dry up. It is important for the cactus to store water for the times when there is very little rain.

Eco-Fact:

Cacti can range in size from 1 inch to 60 feet. The giant saguaro is the largest variety of cacti

Procedures:

- **Before Planting**
 - Introduce cacti plants. Discuss what cacti look like and show students pictures of various types of cacti.
 - Ask students what they think their cacti garden will need to grow. Make a list. Compare the class list to the How to Grow a Cactus Worksheet.
- **Planting procedure:**
 1. Fill the dish or bowl with soil to within 2 inches of the rim.
 2. Determine how you would like to arrange the cacti.
 3. Remove the cacti from the pots. Be very careful when removing the cacti. Place cacti in the back of the dish or bowl and move forward to avoid harm to your fingers.
 4. Add more soil. Use a spoon to get in between spots.
 5. Add a thin layer of gravel.
 6. Water sparingly and keep in a sunny, warm location. Be sure to keep the cacti in the sunlight for 4-6 hours each day.
- **After planting:**
 - Students can complete the included worksheet to show the steps of planting a cactus garden.
 - Explain to students the value of cactus plants and their many uses. Discuss why it is important to learn to care for all kinds of plants.

Adaptations:

- Students can try growing their cacti in different conditions indoors by adjusting the temperature.
- Students can try planting their cacti outdoors during different seasons to see how well they grow



Extensions:

- Teachers can provide students with a list of steps for planting a cactus garden that are out of sequence. Students can number the steps in appropriate sequence.
- Compare cacti growth with sunflower growth. Check out the Green Thumb: How to Grow a Sunflower lesson on this GEF site.