

Magic of Desert Plants



Saguaro Cactus

ACTIVITY OVERVIEW

The purpose of this activity is to move students through the completion of an investigation using the scientific process. Having previously asked questions, and made observations and comparisons, students now draw conclusions about the different parts of desert plants. After reviewing what they learned during their field investigation, students create a model of a desert plant then communicate their results with others. Students are also encouraged to submit their work for posting online at the Desert Botanical Garden website.

MATERIALS

- Photographs and illustrations of the plants and plant parts from the Inquiry Stage 1 – Introductory Activity (saguaro, agave, mesquite and roots, stems, and leaves of each)
- Sturdy paper (construction paper, cardstock or cardboard)
- Colored paper (especially greens and browns)
- Crayons, colored markers
- Glue
- Scissors
- Items to use in model construction: string; yarn; toothpicks; fabric; pipe cleaners; straws; etc.
- Optional: *Data Collection Journal and its contents (agave fiber, cup, straw, sponge)*

TEACHER'S GUIDE FOR KINDERGARTEN- INQUIRY IN THE GARDEN - STAGE 3

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Saguaro Cactus

ACTIVITY PROCEDURES

1. Discuss the students' experiences during their trip to the Desert Botanical Garden. Tell them that in this activity, they are first going to review what they learned during their field trip. Then they are going to have fun creating one of the special desert plants they just learned about.
2. Ask students to name the three desert plants that live in the Sonoran Desert (saguaro, agave, mesquite). Show photographs of each (from the Introductory Activity). Review with students the name of the desert we live in (Sonoran Desert) and the characteristics of a desert (hot and dry).
3. Next review the three plant parts with students (roots, stems, and leaves). Show photographs of each (from the Introductory Activity).
4. Review how magic is hidden in roots. (Roots provide support for the plant. Roots collect (or drink) water for the plant.) Ask students if they remember the song "Magic of Desert Plants" from their field trip. Sing the verse about roots together. Ask students the following questions:

"What was the magic hidden in roots?" (Roots sip water like straws!)

"What did you collect in your magic bag to remind you of this magic?" (cup and straw)

"How are roots different for different types of plants?" (spread out, deep, shallow)

5. Review how magic is hidden in stems. (Stems provide structure and support for plants. Cactus stems can hold water.) Ask students if they remember the song verse about stems that they learned on the field trip. Sing that verse together. Ask students the following questions:

"What was the magic hidden in stems?" (Cactus stores water in stems!)

"What did you collect in your magic bag to remind you of this magic?" (sponge)

"How are stems different for different types of plants?" (thin, thick...)

continued...

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Agave

ACTIVITY PROCEDURES

6. Review how magic is hidden in leaves. (Leaves make food for plants. Some leaves contain fibers.) Ask students if they remember the song verse about leaves that they learned on the field trip. Sing that verse together. Ask students the following questions:

“What was the magic hidden in leaves?” (Agave has fiber in leaves!)

“What did you collect in your magic bag to remind you of this magic?” (agave fibers)

“How are leaves different for different types of plants?”
(small, large, spiny, fibrous, succulent)

7. Instruct students to choose one of the plants they learned about: saguaro, agave, or mesquite. Explain that they will make a model of their plant and its parts using a variety of materials (review the materials available). Students should cut and glue materials onto a piece of heavy construction paper to represent the three special parts of their plant. They can also draw with crayons or markers to make their picture look like their plant. If students are able, they can write the name of their plant and label the parts. (Optional: Students can use the contents of their *Data Collection Journals* in the construction of their model.)
8. When students have finished making their plant models, divide them into small groups. Have each student share his/her picture with their group and describe which plant they chose, how each part is represented, and any other special features they included.
9. Return to a whole class discussion. Ask two students to stand in front of the class with their plant models. Call on other students to describe how the roots, stems, and leaves differ but still have similar functions. Repeat several times with different sets of students and plants.
10. Commend the class for creating such wonderful plant models, describing the three main parts of plants and their importance, and for describing differences of these parts between different plants. As a class, sing the entire “Magic of Desert Plants” song. While singing the verse about roots, stems or leaves, have students point to the correct part on their plant model.

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Mesquite Tree

ACTIVITY PROCEDURES

THEME SONG – Tune is to the song “Follow the Yellow Brick Road”

Verse 1.

Magic is hidden in plants (clap, clap)

Magic is hidden in plants (clap, clap)

La– la– la– la– la– la– la, Magic is hidden in plants. (Clap, clap)

Verse 2.

Agave has fiber in leaves (clap, clap)

Agave has fiber in leaves (clap, clap)

La– la– la– la– la– la– la, Agave has fiber in leaves. (clap, clap)

Verse 3.

Cactus stores water in stems (clap, clap)

Cactus stores water in stems (clap, clap)

La– la– la– la– la– la– la, Cactus stores water in stems. (clap, clap)

Verse 4.

Roots sip water like straws (clap, clap)

Roots sip water like straws (clap, clap)

La– la– la– la– la– la– la, Roots sip water like straws (clap, clap)

Verse 5.

The Garden's a great place to learn (clap, clap)

The Garden's a great place to learn (clap, clap)

La– la– la– la– la– la– la, The Garden's a
great place to learn (clap, clap)

POST YOUR FINDINGS ON THE INTERNET!

The final step of the Inquiry Process is to share your findings. One way that scientists do this is by publishing in science journals. You can share your findings by visiting the *DBG Journal of Student Findings* at <http://www.dbg.org/index.php/digital/students/journal>. Here you can submit your investigation findings or original art inspired by your Inquiry in the Garden. For more ideas on art projects that tie into Garden themes, teachers can go to the *Additional Resources* section of the Digital Learning website.

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RELATED ADE STANDARDS:

LANGUAGE ARTS STRAND 3: LISTENING AND SPEAKING

CONCEPT	PERFORMANCE OBJECTIVE
Students effectively listen and speak in situations that serve different purposes and involve a variety of audiences.	LS-R2. Follow simple directions. LS-R3. Share ideas, information, opinions and questions. LS-R5. Participate in group discussions.

LANGUAGE ARTS STRAND 4: VIEWING AND PRESENTING

CONCEPT	PERFORMANCE OBJECTIVE
Students use a variety of visual media and resources to gather, evaluate and synthesize information and to communicate with others.	VP-R3. Create visual representations of personal experiences through media such as drawing, painting, acting and puppeteering.

VISUAL ARTS STRAND 1: CREATE

CONCEPT	PERFORMANCE OBJECTIVE
C2: Materials, Tools, and Techniques – The student will use materials, tools, and techniques in his or her own artwork .	PO 001. Identify and experiment with materials, tools, and techniques in his or her own artwork .
C4: Meanings or Purposes • The student will express ideas to communicate meanings or purposes in artwork.	PO 001. Describe and explain his or her own artwork .

VISUAL ARTS STRAND 2: RELATE

CONCEPT	PERFORMANCE OBJECTIVE
C4: Meanings or Purposes – The student will interpret meanings or purposes of artwork based on contextual information.	PO 001. Interpret meanings and/or purposes of an artwork using subject matter and symbols.

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RELATED ADE STANDARDS:

SCIENCE STRAND 1: INQUIRY PROCESS

CONCEPT	PERFORMANCE OBJECTIVE
C3: Analysis and Conclusions – Organize and analyze data; compare to predictions.	<p>PO 1. Organize (e.g., compare, classify, and sequence) objects, organisms, and events according to various characteristics.</p> <p>PO 2. Compare objects according to their measurable characteristics (e.g., longer/shorter, lighter/heavier).</p>
C4: Communicate results of investigations.	<p>PO 1. Communicate observations with pictographs, pictures, models, and/or words.</p> <p>PO 2. Communicate with other groups to describe the results of an investigation.</p>

SCIENCE STRAND 4: LIFE SCIENCE

CONCEPT	PERFORMANCE OBJECTIVE
C1: Characteristics of Organisms – Understand that basic structures in plants and animals serve a function.	
C3: Organisms and Environments – Understand the relationships among various organisms and their environment	<p>PO 1. Identify some plants and animals that exist in the local environment.</p> <p>PO 2. Identify that plants and animals need the following to grow and survive:</p> <ul style="list-style-type: none"> · food · water · air · space

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RELATED ADE STANDARDS:

SCIENCE STRAND 5: PHYSICAL SCIENCE

CONCEPT	PERFORMANCE OBJECTIVE
<p>CI: Properties of Objects and Materials – Classify objects and materials by their observable properties.</p>	<p>PO 1. Identify the following observable properties of objects using the senses:</p> <ul style="list-style-type: none"> · shape · size <p>PO 2. Compare objects by the following observable properties:</p> <ul style="list-style-type: none"> · size

WORKPLACE SKILLS STANDARD 1

CONCEPT	PERFORMANCE OBJECTIVE
<p>IWP-R1. Follow simple directions.</p>	<p>PO 2. Complete directed work</p>

WORKPLACE SKILLS STANDARD 2

CONCEPT	PERFORMANCE OBJECTIVE
<p>2M-R1. Compare and sort objects by their physical attributes.</p>	<p>2M-R2. Collect, organize and describe simple data.</p>

AMENDMENT TO STANDARDS

Kindergarten Inquiry in the Garden Stage 3

EDUCATIONAL TECHNOLOGY STRAND 2: COMMUNICATION AND COLLABORATION

CONCEPT	PERFORMANCE OBJECTIVE
C1: Effective Communications and Digital Interactions	PO1: Communicate with others as a whole class using digital tools.