

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

Desert Plant Detectives



Sonoran Desert Habitat

ACTIVITY OVERVIEW

The purpose of this activity is to move students through the completion of an investigation using the scientific process. Having previously made observations, asked questions, developed hypotheses, and made and tested predictions, students now analyze their results and draw conclusions about desert plant adaptations. Students complete a Study Guide and develop creative displays to share their results with others. Students are also encouraged to post their work online at the Desert Botanical Garden website.

MATERIALS

- *Data Collection Journals*
- *Student Study Guide – Investigating Desert Plant Adaptations – Results and Conclusion*

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Seed Dispersal

ACTIVITY PROCEDURES

1. Review and discuss the students' experiences during their trip to the Desert Botanical Garden. Go over the data collected in their *Data Collection Journals* and answer any questions students may have. Use the provided graph and Venn diagram in the *Journals* to review the class's field investigation at the Garden.
2. Divide students back into their investigative teams (the teams assigned in Stage 1 of this inquiry). Hand out the *Student Study Guide – Investigating Desert Plant Adaptations – Results and Conclusion* one to each student. Each team should focus on their specific plant adaptation (as assigned in Stage 1) as they complete their *Study Guides*. They will continue to follow the scientific method as they wrap up their investigations.
3. Explain that the final step in the scientific process is sharing your findings with others. Discuss the importance of sharing scientific information (so that others may learn from the work and to expand everyone's understanding of the subject). Scientists typically publish their work in scientific journals. As described in their *Study Guides*, students will prepare a final presentation of their investigation to share with others, both in class and by posting online on the *DBG Journal of Student Findings*.
4. Allow students to work together to complete their *Student Study Guides* and prepare their final presentations. They should refer to their *Data Collection Journals* (completed during their field investigation at the Desert Botanical Garden) and copy that data onto their *Study Guides*. Although students may work together as a team, each student should complete their own *Study Guide*. For their presentations, students may choose to create a poster, design a slide show, draw pictures, generate graphs of their data, and/or include photographs taken during their field trip or acquired from the internet. Encourage student creativity in the display of their work. (*Note: For more ideas on art projects that tie into Garden themes, go to the Additional Resources section of the Digital Learning website.*)

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Sonoran Desert Scene

ACTIVITY PROCEDURES

5. Have students present their investigations to the rest of the class. Again, encourage creativity! Suggestions for final presentations include team presentations, poster displays, “science fair” displays, mock interviews, 3–D models, etc. Remind students that their final products should include each step of the scientific process.
6. Conclude the activity with a discussion of each of the four investigations. Use the “*Questions for Discussion*” from the *Student Study Guide* as a guide for the discussion.

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

STANDARD 3: LISTENING AND SPEAKING	PERFORMANCE OBJECTIVE
Students effectively listen and speak in situations that serve different purposes and involve a variety of audiences.	LS-E2. Prepare and deliver an oral report in a content area and effectively convey the information through verbal and nonverbal communications with a specific audience

LANGUAGE ARTS STRAND 4: VIEWING AND PRESENTING

STANDARD 4: VIEWING AND PRESENTING	PERFORMANCE OBJECTIVE
Students use a variety of visual media and resources to gather, evaluate and synthesize information and to communicate with others.	VP-E2. Plan, develop and produce a visual presentation, using a variety of media such as videos, films, newspapers, magazines and computer images.

SCIENCE STRAND 1: INQUIRY PROCESS

CONCEPT 3: ANALYSIS AND CONCLUSIONS	PERFORMANCE OBJECTIVE
Analyze and interpret data to explain correlations and results; formulate new questions.	<p>PO 1. Analyze data obtained in a scientific investigation to identify trends and form conclusions.</p> <p>PO 2. Analyze whether the data is consistent with the proposed explanation that motivated the investigation.</p> <p>PO 3. Evaluate the reasonableness of the outcome of an investigation.</p> <p>PO 4. Develop new investigations and predictions based on questions that arise from the findings of an investigation.</p>

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RELATED ADE STANDARDS:

SCIENCE STRAND 1: INQUIRY PROCESS

CONCEPT 4: COMMUNICATION	PERFORMANCE OBJECTIVE
<p>Communicate results of investigations.</p>	<p>PO 1. Communicate verbally or in writing the results of an inquiry.</p> <p>PO 2. Choose an appropriate graphic representation for collected data:</p> <ul style="list-style-type: none"> • bar graph • line graph • Venn diagram • model <p>PO 3. Communicate with other groups or individuals to compare the results of a common investigation.</p>

TECHNOLOGY SKILLS STRAND 4

STANDARD 4: TECHNOLOGY COMMUNICATIONS TOOLS	PERFORMANCE OBJECTIVE
<p>4T-E2. Use technology tools for individual and collaborative writing, communication and publishing activities to create curricular related products for audiences inside and outside the classroom.</p>	<p>PO 1. Plan, design and present an academic product using technology tools (e.g., multimedia authoring, presentation software, digital cameras, scanners, projection devices).</p>

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RELATED ADE STANDARDS:

WORKPLACE SKILLS

STANDARD 1 – Students use principles of effective oral, written and listening communication skills to make decisions and solve workplace problems.	PERFORMANCE OBJECTIVE
IWP–E6. Speak in a content area (e.g., science, social studies, literature), using vocabulary of the subject accurately; locate and interpret information in documents such as manuals, graphs, and schedules.	PO 1. Deliver a factual presentation using appropriate terminology. PO 2. Use a variety of formats such as data, graphs and technical manuals to support a presentation.

WORKPLACE SKILLS

STANDARD 3 – Students apply critical and creative thinking skills to make decisions and solve workplace problems.	PERFORMANCE OBJECTIVE
3WP–E1. Utilize information acquired from several sources and transfer information learned in one situation to another.	PO 1. Research a designated topic using a wide array of information sources. PO 2. Analyze the information obtained from the research. PO 3. Classify the information obtained from the research.