Activity Overview

In preparation for their visit to the Desert Botanical Garden, students first explore what it means to be a “buddy” as they consider their relationships with their own buddies. Students then consider different ways that plants and animals can be buddies and play a game in which they partner up with their correct animal or plant buddy. Students next look at photographs of some plants and animals they will see at the Desert Botanical Garden and make predictions about the relationships these plants and animals may have with each other.

To support the Inquiry in the Garden lesson plans, you may also use the tutorials and Virtual Habitat in DBG’s Digital Desert. These interactive activities will prepare students for their investigations by teaching them about the characteristics of deserts and the Sonoran Desert habitat.

Materials

(Note: All of the following materials are provided as downloadable graphics.)

Plant and Animal Buddy Example Cards:
- Squirrel
- Bat
- Bee
- Oak Tree (with acorn inset)
- Columnar Cactus Flower
- Desert Flower

DBG Buddy Cards:
- Saguaro Cactus
- Gila Woodpecker
- Creosote Bush
- Ground Squirrel
- Paloverde Tree
- Pocket Mouse

Guide to DBG Buddy Cards

Learning Objectives

Upon completion of this activity, students will be able to…:
- describe at least two ways that plants and animals help each other.
- list at least two different plant and animals in “buddy” relationships.
- identify and say the name of the saguaro, Gila woodpecker, paloverde tree, pocket mouse, creosote bush and ground squirrel.
- make predictions about possible “buddy” relationships based on life history information of an organism.

continued
Inquiry Stage 1 - Introductory Activity

Plants and Animals are Buddies

Activity Procedures:

2. What is a buddy?

Tell students that during their trip, they will specifically be learning about desert plants and animals that are buddies. Ask students:

“What is a buddy?”

As students come up with answers to the question, acknowledge responses and help them explore the concept of buddies. Other questions you might ask to help guide their thinking include the following:

– What does it mean to be a buddy?
– What are some signs of buddies?
– How can you tell if two people are buddies?

As you discuss responses, emphasize the following:

– A buddy is someone you do things for and they do things for you.
– Buddies often hang out together.
– Buddies help each other.

continued
3. Discuss buddies.

Ask students the following questions and discuss their answers:

– Who here has a buddy?
– What do you do for your buddy?
– What does your buddy do for you?

Acknowledge responses and point out that an important thing about buddies is that both buddies benefit from the relationship; each in some way does something that helps the other. Next ask:

Do you think plants and animals have buddies?

As students respond, ask them the following:

– Can anyone think of an example of plant or animal buddies?
– What are some ways a plant might help an animal or an animal might help a plant?

Students will likely have a variety of answers. Acknowledge the responses and point out that some plants and animals are indeed buddies. (If any students gave appropriate responses, use those as good examples.)

4. Discover some plant and animal buddies.

Explain that you are going to hand out some pictures of some plant and animal buddies. The pictures are examples of some common plants and animals that have “buddy” relationships with other plants or animals. Call on six students to participate and have them spread out around the room. Hand out one picture to each student and tell them not to show anyone until instructed to do so. (Try to give the buddy pictures to students not standing near one another so they will have to walk around to find their buddy.) Tell them that the object of the activity is for the correct “buddies” to find each other. Tell the buddies they can now hold their pictures up high for all to see. They should now look for and go to their buddy. The rest of the class may verbally help guide buddies to each other.
5. Discuss the example buddies.

Give students time to move around the room and find each other. Once all buddies are paired, discuss each buddy pair, one at a time. Ask the following questions to help guide the discussion:

What kind of plant is this?
What kind of animal is this?
What does the ______________(plant) do for the ______________(animal)?
What does the ______________(animal) do for the ______________(plant)?
Are these two buddies?

Use the following information to aid your discussion:

Squirrel and acorn: The acorn (which is the seed of an oak tree), provides food for the squirrel.
The squirrel often buries acorns to save them for later. Many of the acorns are not recovered by the squirrel and may grow into a tree. In this way, the squirrel helps the oak tree by dispersing and planting its seeds.

Bat and cactus flower: The cactus flower (which is white and blooms at night) provides nectar (food) for the bat.
The bat helps the cactus by pollinating the flower. Flowers must be pollinated in order to produce fruit that are full of seeds. Thus, more cactus can grow.

Bee and flower: This flower (which is colorful and blooms during the day) provides nectar and pollen for the bee.
The bee helps the plant by pollinating the flower. Again, plant flowers must be pollinated in order to produce the fruit that are full of seeds. Thus, more plants can grow.

Wrap up this activity by pointing out that each of these pairs are good examples of buddies. Each helps the other. Thank your buddies and allow them to return to their seats.


Commend students for their success at finding their buddies in the previous activity. Remind students that they will be going to a field trip to the Desert Botanical Garden and ask if they think they might see any of the plants or animals they just discussed. Yes, they might! Explain that you are now going to show them pictures of some more plants and animals

continued
that are also buddies in some way. This time however, instead of pairing up the buddies, the class will ask questions and make predictions as to which plants and animals are buddies and how they might help each other. Once at the Botanical Garden, students will find out exactly how these plants and animals are buddies as they experience them up close and personal!

7. Review DBG buddy cards.

Bring out and one by one, share each of the DBG buddy cards. As you bring out each card, hold it high for all to see and read the associated information about it from the Guide to DBG Buddy Cards. Tell students to listen quietly as you read about each plant or animal. Each has important information you will need for the next part of this activity. Explain that when you are done, you will all come up with some questions about each plant or animal and make predictions as to which two might be buddies with each other. Ask students to hold off comments until you are done reading all the cards. The information for each card follows:

**Saguaro Cactus:** This is a saguaro cactus. It lives in the Sonoran Desert. In the spring, it produces large, white flowers that become succulent, red fruits after pollination. It can grow to over 40 feet tall and live around 250 years. Its body tissues are full of water. It can heal itself with a scab-like crust if it gets cut or scraped.

**Creosote Bush:** This is a creosote bush. It lives in the Sonoran Desert. Its leaves have a waxy coating which help it to hold water and protect it from the sun. Even when it’s real hot and dry, the creosote bush survives, shading the ground with its bushy branches.

**Paloverde Tree:** This is a paloverde tree. Paloverdes live in the Sonoran Desert and their name means “green stick.” Their stems are green because like their leaves, they can make food in their stems. Paloverde trees bloom bright yellow in the spring and produce hundreds of bean pods. Inside the bean pods are many hard seeds which are eaten by a variety of desert animals.

**Pocket Mouse:** This is a pocket mouse. Pocket mice are found in the Sonoran Desert where they eat lots of seeds and live in underground burrows. They are called pocket mice because they carry their seeds in their cheek pouches. They are active mostly at night. Pocket mice are hunted by many predators such as hawks, owls, and coyotes.
Ground Squirrel: This is a ground squirrel. It is also known as the round-tailed ground squirrel and it lives in the Sonoran Desert. Ground squirrels live in underground burrows, usually at the base of small bushes. Ground squirrels eat seeds and green plants. Ground squirrels will hibernate during the coldest part of winter and will stay underground during the hottest, driest days of summer.

Gila Woodpecker: This is the Gila woodpecker. It lives in the Sonoran Desert. Like other woodpeckers, this bird uses its strong beak to dig insects out of the bark of plants. The Gila woodpecker prefers a certain desert plant in which it carves out a hole to serve as its home. Gila woodpeckers eat insects, berries, and cactus fruit.

8. Discuss DBG buddies.

Once all cards have been read and displayed, point to each plant or animal and have students say its name and ask what they recall about it. Next lead an inquiry discussion about the plants and animals. The goal of this discussion it to make predictions as to which plant/animal pairs might be buddies. Students will also generate questions that might be answered during your field trip to the Desert Botanical Garden. Use the following questions to help guide your discussion:

Which of these might possibly be buddies with one another?

In what way could they be buddies?

What else do we need to know in order to figure out which plants and animals are buddies?

Might some of these animals be buddies with more than one other plant?

How might this _____________(plant) help this _____________(animal)?

How might this _____________(animal) help this _____________(plant)?

9. Making buddy predictions and generating questions.

Prepare a table on the board using the table below as a guide (it is best to have this prepared in advance). Use the table to summarize student responses about how each plant or animal might help each other if they were buddies. In each cell, write how each might help the other and include questions that might need to be answered to help students better understand the possible relationships. The first cell is completed as an example:

continued
Plants and Animals are Buddies

<table>
<thead>
<tr>
<th>POCKET MOUSE</th>
<th>GROUND SQUIRREL</th>
<th>GILA WOODPECKER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Why buddies?</strong> The paloverde could provide food for the pocket mouse since it eats seeds. The pocket mouse might help the paloverde with protection, pollination, or seed planting. <strong>Questions:</strong> Does the pocket mouse eat all the seeds it collects? Does the pocket mouse do something to protect or pollinate the paloverde?</td>
<td><strong>Why buddies?</strong></td>
<td><strong>Why buddies?</strong></td>
</tr>
<tr>
<td><strong>Why buddies?</strong></td>
<td><strong>Questions:</strong></td>
<td><strong>Questions:</strong></td>
</tr>
<tr>
<td><strong>SAGUARO</strong></td>
<td><strong>Why buddies?</strong></td>
<td><strong>Why buddies?</strong></td>
</tr>
<tr>
<td><strong>Questions:</strong></td>
<td><strong>Questions:</strong></td>
<td><strong>Questions:</strong></td>
</tr>
<tr>
<td><strong>CREOSOTE BUSH</strong></td>
<td><strong>Why buddies?</strong></td>
<td><strong>Why buddies?</strong></td>
</tr>
<tr>
<td><strong>Questions:</strong></td>
<td><strong>Questions:</strong></td>
<td><strong>Questions:</strong></td>
</tr>
</tbody>
</table>

Once the table is completed with students, review each possible buddy pairing and ask students to come up with their predictions as to which plant/animals pairings are the most likely buddies. Circle the predicted pairs where they intersect on the table.

10. **Review your predictions and wrap up the activity.**

Commend students for their good predictions and questions. Remind them to remember their predictions and questions in order to share these with their guide during their field trip. (It is a good idea to copy your table on paper to review with students the day of their field trip.) Remind students that they will discover the answers for themselves at the Desert Botanical Garden!
Acorn
Squirrel
Bat
Columnar Cactus Flower
Plants and Animals are Buddies

Bee
Desert Flower
Saguaro Cactus
Gila Woodpecker
Creosote Bush
Ground Squirrel
Paloverde Tree
Pocket Mouse
## Related ADE Standards:

### Comprehensive Health Strand 5

<table>
<thead>
<tr>
<th>Concept</th>
<th>Performance Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>5CH-F2. Describe characteristics needed to be a responsible friend and family member</td>
<td>PO 1. Explain what it means to care and be a friend</td>
</tr>
</tbody>
</table>

### Reading Strand 3: Comprehending Informational Text

<table>
<thead>
<tr>
<th>Concept 1: Expository Text</th>
<th>Performance Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text.</td>
<td>PO 2. Answer questions (e.g., who, what, where, when, why, how) about expository text, heard or read.</td>
</tr>
</tbody>
</table>

### Writing Strand 1: Writing Process

<table>
<thead>
<tr>
<th>Concept 1: Prewriting</th>
<th>Performance Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prewriting includes using strategies to generate, plan, and organize ideas for specific purposes.</td>
<td>PO 1. Generate ideas through prewriting activities (e.g., brainstorming, webbing, drawing, writer’s notebook, group discussion).</td>
</tr>
</tbody>
</table>

### Writing Strand 3: Writing Applications

<table>
<thead>
<tr>
<th>Concept 2: Expository</th>
<th>Performance Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expository writing includes non-fiction writing that describes, explains, informs, or summarizes ideas and content. The writing supports a thesis based on research, observation, and/or experience.</td>
<td>PO 2. Participate in creating simple summaries from informational texts, graphs, tables, or maps. (See M01-S2C1)</td>
</tr>
</tbody>
</table>

### Language Arts Strand 3: Listening and Speaking

<table>
<thead>
<tr>
<th>Standard 3: Listening and Speaking</th>
<th>Performance Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students effectively listen and speak in situations that serve different purposes and involve a variety of audiences.</td>
<td>LS-F1. Use effective vocabulary and logical organization to relate or summarize ideas, events and other information</td>
</tr>
</tbody>
</table>

### Language Arts Strand 4: Viewing and Presenting

<table>
<thead>
<tr>
<th>Standard 4: Viewing and Presenting</th>
<th>Performance Objective</th>
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</thead>
<tbody>
<tr>
<td>Students use a variety of visual media and resources to gather, evaluate and synthesize information and to communicate with others.</td>
<td>VP-F3. Access, view and respond to visual forms such as computer programs, videos, artifacts, drawings, pictures and collages</td>
</tr>
</tbody>
</table>
Plants and Animals are Buddies

**Related ADE Standards:**

### Science Strand 1: Inquiry Process

**Concept 1: Observations, Questions, and Hypotheses**

<table>
<thead>
<tr>
<th>Performance Objective</th>
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</thead>
<tbody>
<tr>
<td>PO 1. Compare common objects using multiple senses.</td>
</tr>
<tr>
<td>PO 2. Ask questions based on experiences with objects, organisms, and events in the environment. (See M01-S2C1-01)</td>
</tr>
<tr>
<td>PO 3. Predict results of an investigation based on life, physical, and Earth and space sciences (e.g., animal life cycles, physical properties, Earth materials).</td>
</tr>
</tbody>
</table>

**Science Strand 4: Life Science**

**Concept 3: Organisms and Environments**

<table>
<thead>
<tr>
<th>Performance Objective</th>
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</thead>
<tbody>
<tr>
<td>PO 1. Identify some plants and animals that exist in the local environment.</td>
</tr>
<tr>
<td>PO 3. Describe how plants and animals within a habitat are dependent on each other.</td>
</tr>
</tbody>
</table>

### Workplace Skills Strand 1

**Standard 1:** Students use principles of effective oral, written, and listening communication skills to make decisions and solve workplace problems.

<table>
<thead>
<tr>
<th>Performance Objective</th>
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<tbody>
<tr>
<td>PO 1. Recognize the content of an oral presentation</td>
</tr>
<tr>
<td>PO 2. Ask questions relating to content</td>
</tr>
<tr>
<td>PO 3. State opinions relating to content</td>
</tr>
<tr>
<td>PO 4. Develop summary of relevant content</td>
</tr>
</tbody>
</table>

**IWP-F2.** Respond to oral presentations by formulating relevant questions and opinions and summarizing accurately

**IWP-F3.** Apply critical listening skills (e.g., listening for content, long-term contexts, emotional meaning, following directions)

**IWP-F4.** Listen to an oral presentation, evaluate, and express an opinion orally

### Workplace Skills Strand 3

**Standard 3:** Students apply critical and creative thinking skills to make decisions and solve workplace problems.

<table>
<thead>
<tr>
<th>Performance Objective</th>
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</thead>
<tbody>
<tr>
<td>PO 1. Give examples of methods to initiate change</td>
</tr>
</tbody>
</table>

**3WP-F2.** Identify methods for initiating change