

Bio/Diversity Project
Lesson Title: *CACTUS HOTEL*

Teacher: Eleanor Allen-Henderson, Michael Roberta

Grade Level: *Kindergarten*

Time: *40 minutes*

Adapted From: Saguaro National Park

<p>AZ State Science Standard:</p>	<p><i>Life Science Standards K.L1U1.6</i></p> <ul style="list-style-type: none"> ● <i>Observe, ask questions, and explain how specialized structures found on a variety of plants and animals (including humans) help them sense and respond to their environment</i> <ul style="list-style-type: none"> ○ <i>“Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive, grow, and produce more plants”</i>
<p>Content Objective: Math, Reading, Science, Writing, Other:</p>	<ul style="list-style-type: none"> ● <i>Students will be able to identify the Saguaro as a natural resource for pollinators in the Sonoran Desert.</i> ● <i>Students we be able to identify animals that reside in Saguaros, particularly pollinators.</i> ● <i>Students will be able to define an ecosystem, specifically labeling the Saguaro and pollinators as members of a mutually beneficial system.</i>
<p>Language Objective: (Optional)</p>	<p><i>N/A</i></p>
<p>Scientist of the Week:</p>	<ul style="list-style-type: none"> ● <i>Ofelia Zepeda, member of the Tohono O’odham Nation</i> ● <i>Studies how humans learn language and the survival of indigenous languages</i> ● <i>Professor, part time poet</i> ● <i>Tohono O’odham people traditionally collect the fruit of the Saguaro Cactus</i> ● <i>Highest accredited professor position</i>

Vocabulary		Materials		
<ul style="list-style-type: none"> • Saguaro • Sonoran Desert • Ecosystem 		<ul style="list-style-type: none"> • Saguaro National Park's <i>Cactus Hotel</i> travelling trunk 		
<p>Seasonality: (If more specificity is required, please note date/time range under the season)</p> <p>Highlight which season(s) your lesson would be most suited to. When working with the natural world, it is important to keep this in mind for your planning! Some activities are possible for a brief window of time while others may be appropriate during any time of year.</p>				
<i>Monsoons</i> July-Sept.	<i>Autumn</i> Oct.-Nov.	<i>Winter</i> Dec.- Feb.	<i>Spring</i> Mar.-Apr.	<i>Dry Summer</i> May-June
<p>Guiding Questions:</p> <ul style="list-style-type: none"> • Does the word 'diverse' sound familiar to you? <ul style="list-style-type: none"> ○ what do you think it means? if you had to guess what would it mean? • Do we (students & teachers) live in a diverse place? what makes a place diverse? <ul style="list-style-type: none"> ○ we live in a place with a variety of animals and plants • What types of areas do cactus live? do you see them in your schoolyard? In the mountains? • Do you ever see animals living around Saguaros? • What are the different ways Saguaros can help desert animals survive? • Why do Saguaros need pollinators? What do pollinators need from Saguaros? 				

Engagement/Introductory Activity:

- Begin the engagement by preparing the students for the exploratory activity.
- Walk through each the animals featured in *Cactus Hotel* one by one, showing the students, and asking students to act out the animals.

- Students will be prompted by questions in the following forms: “how would a coyote walk? what noises do a coyote make? how does a Saguaro stand?”
 - Students will eventually make the movements and noises of the Gila woodpecker, elf owl, bats, bees, coyotes, tortoises, and Saguaros.

Exploratory Activity:

- Prepare students for the explore activity by letting students know that we will read parts of a book together. After a section of the book, ask students to act as characters from *Cactus Hotel*.
- Introduce that inside the trunk there are special props that will help students inhabit their characters. Let students know that they will get a chance to see everything in the trunk at the end of the book and that each student will be chosen to act something out, but they might have to wait as the class reads more of the book.
- Begin the lesson by reading pages 3-13 of *Cactus Hotel*, the text of which introduces the pollination of the Saguaro fruit and its traditional harvest by the Tohono O’odham Tribe.
- After reading pages 3-13, call on two students stand up and come towards the front of the class. Ask your volunteers to pose as Saguaros, holding their arms like Saguaros. Each student will hold up a Saguaro flower.
- Explain that in order to make the fruit of the Saguaro cactus, pollen will have to move from flower to flower. To demonstrate, call on three students to use bats plushies and a bee plushie to move pollen around from flower to flower.
- Collect the plushies from the students, then explain the Saguaro flowers can now grow fruits.
- Call on a student to come up with a kui-pad to collect the Saguaro fruit.
- Ask all students to sit back down, criss cross applesauce. Once students are all sitting criss cross applesauce, we can move on to the next section of the book about Gila woodpeckers.
- Read pages 14-17 and call on one student to come forward; they will represent a Saguaro.
- Show a picture from the book depicting the manner in which Gila woodpeckers make a home out of Saguaros. Then show the elf owl puppet, letting students know that they live in the homes of Gila woodpeckers.
- Read pages 18-23 to the class. After reading, call on another student to come forward to be the Saguaro cactus. Another student will be handed the Saguaro fruits, to place them on the ground (representing that the fruit is ready to eat).
- Call on another two students to play a tortoise and a coyote, who will crawl on the floor, collecting the cactus fruit.
- Explain that many animals (including humans) depend on the Saguaro fruit.
- Remind the students about the importance of pollination by asking the students what helps make Saguaro fruit (pollination).
- Read pages 24-27. One student will come forward to represent the final Saguaro. This student will lay down on the ground, representing the Saguaro at the the end of its life. The other students will get to place insect on the “Saguaro.”
- Read pages 28-29, ending the exploratory activity.

Explain:

- Discuss the importance of pollinators to the Sonoran desert.

- Using the Saguaro as an example, have students list the animals involved in the Saguaro's ecosystem. Once a student names an animal, they can hold the animal plushie in their hand.
- Once students have listed the animals, ask the students which of the different animals help make Saguaro fruits and which animals eat the Saguaro fruits.
- Explain that the animals who help make the Saguaro fruits mix pollen from different flowers, while animals that eat the fruit help spread Saguaro seeds around the desert environment.

Extension Activity/Questions:

- Tell students they will be practicing the 'Saguaro Dance.'
- Ask students to spread out around their 'science mat' leaving an arm width of distance between each other.
- Introduce each one of the dance moves separately. First, have students do the 'roots' move, squatting up and down while they spread out the fingertips. Then, students will represent the ribs by moving their arms up and down. Then, students will practice the 'spongy material' by giving themselves hugs. Lastly, students will practice pleats, jumping with legs out and in.
- Lead students in a round of the Saguaro dance, announcing the moves as students follow along.

Evaluation Activity:

- Ask students to draw a Saguaro in their science notebooks. They will choose a "best friend" (one of the animals in the Cactus Hotel book) to be their Saguaro's companion. Students will then name their Saguaro and companion.