



COLLEGE OF SOCIAL & BEHAVIORAL SCIENCES

Women in Science
& Engineering

The Bio/Diversity Project

Introduction to Sonoran Desert Pollinators

Teacher: Emma Turpin & Zabrina Duran

Grade Level: 6th

Time Teaching: 9:00am-1:05pm

This lesson has been adapted from: [Flowers Seeking Pollinators](#) and [Pollination Investigation Field Journal](#)

AZ Science Standard:	6.L2U1.13 • <i>Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.</i>
Learning Objectives:	• Students will be able to explain that flowers attract specific pollinators. • Students will be able to explain that many plants depend on pollinators to reproduce.
Scientist of the Week:	 • <i>Full Name : Dr. Rebecca Tonietto</i> • <i>Picture</i> • <i>Occupation : Bee Specialist</i> • <i>Location : Urban Midwest</i> • <i>1-2 important contributions to science: Discovering which garden types to best support native pollinators and reintroduce native plant species as well plants that do well in the midwest.</i>

Vocabulary	Materials
• Pollinator • Biodiversity	• Presentation • Class set of pencils • Class set of pipecleaners • Class set of tissue paper • Class set of blank paper



		• Printed text - select from Texts in English - 4 copies of this file • Sonoran desert adapted imaginary garden images - 17 copies of this file • Printed pollinator profile cards - 4 copies of this file • Field Journals in English - 4 copies of this file <i>Do you need any additional materials for the icebreaker activity? If so, add them below.</i> 6 roles of toilet paper		
Seasonality: Any seasonality				
<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
Guiding Questions: • <i>What does pollinator diversity look like in the Sonoran Desert?</i> • <i>What kind of impact do pollinators have on ecosystem function and productivity?</i>				

Engagement/Introductory Activity:

- Introduce yourself to the class. Come up with your own icebreaker/get-to-know you activity and detail the instructions here (5 minutes or less)
- ICEBREAKER: toilet paper pass (<https://www.weareteachers.com/middle-school-icebreakers/>)
 - We will start by passing around a couple rolls of toilet paper and telling the students to take what they need. We won't explain the activity until everyone has "taken what they need" from the roll of toilet paper. Then once everyone has their toilet paper, we will ask each student to share a fun fact about themselves for each square of toilet paper they grabbed.
- Pass out a blank piece of paper to students. Ask students to draw their favorite flower.
- While they draw, ask students: "Why do plants have flowers?" "Are plants trying to win a beauty contest?" *Flowers are the reproductive parts of the plant - flowers have specific traits to attract pollinators, such as bees and butterflies.*
- Ask students, "Why are there so many different types of flowers?" *Different flowers attract different pollinators. The types of flowers that are attractive to bees, for example, won't always be attractive to butterflies.* (5 mins)
- Display a [diagram of flower anatomy](#). Without going into detail on the scientific vocabulary, ask students what they believe happens when a bee visits a flower.
 - Ask follow-up questions to help students reach the basic concept of pollinators accidentally taking pollen (the reproductive "seeds" of flowers) and dispersing pollen from flower to flower when they visit to drink nectar, which helps the flower reproduce.

- If time allows, show this video:
▶ Pollination For Kids | What Is Pollination ? | Are Wasps Pollinators ? | Pollination ...
- Ask students to draw a pollinator visiting their flower. If students don't know what a pollinator is, ask them to make their best guess as to what kinds of animals visit flowers. Potential pollinators could be bees, bats, butterflies, beetles, moths, flies, birds, etc.

Exploratory Activity:

- **Science Literacy Option**
- Split students into pairs and instruct them to sit together (if they are not already. It helps to use students who are sitting next to each other at a table already so that students don't have to move seats.)
 - Ask groups to decide who will be the reader and who will be the recorder.
- Tell students that we are going to take a virtual field trip to explore pollinators that live in our community.
- Hand out [copies of the different texts](#), one pollinator text per group, and instruct students to read the text out loud
 - The reader will read aloud while other group member follows along silently
 - Each text should discuss a different native pollinator, its relationships with plants, and its overall importance to the Sonoran Desert
 - Options include; bats, flies, beetles, wasps, native bees, hummingbirds. (link to all of the texts: [Texts in English](#) or [Texts in Spanish](#))
- Hand out one [pollinator profile card](#) to each team and a set of the [sonoran desert adapted imaginary garden images](#). Based on what they read in their assigned text and on the pollinator profile card, instruct students to answer the questions listed on their pollinator investigation field journal. (link to the field journals: [UPDATED Journals in English](#) or [Journals in Spanish](#))
 - If teaching in Spanish: here are the [pollinator profile cards](#)
 - If students have a hard time answering questions about the flower's fragrance, ask them to make their best guess, base it on their lived experiences, and/or use their imagination.

Explain:

- Bring the whole class back together and debrief.
- Present discussion questions.
 - *Why are pollinators important to ecosystems?*
 - *Why are pollinators important to humans?*
 - *Pollinators are important because they provide plants with the proper pollination, which is needed for plants to reproduce and produce flowers and any agricultural foods. When we overlook certain pollinators, we overlook the important work they do.*

Extension Activity/Questions:

- Have each student create a flower with craft materials that would be attractive to their pollinator.
- Create flowers with craft material like tissue paper and pipe cleaners. You will need to create the



following flowers:

- Blue or purple flower (butterfly)
 - Red or orange flower (bird)
 - A bunch of small, white, tube-shaped flowers (moth)
 - A large white flower (fly)
 - A flower of any color (bee)
 - Large, white, cone-shaped flower (bat)
 - For each flower, attach the appropriate Flower Tag with its unobservable traits.
- If there is extra time, have each student write a few sentences about why this flower attracts their pollinator.

Evaluation Activity:

- Ask for volunteer students to present their flower to the class and explain why it would be attractive to a specific pollinator.
- Ask the class what they think would happen to their flower if their pollinator disappeared. Would the flower survive? If it did, how might it change?