



The Bio/Diversity Project  
Lesson Title: Introduction to Pollinators

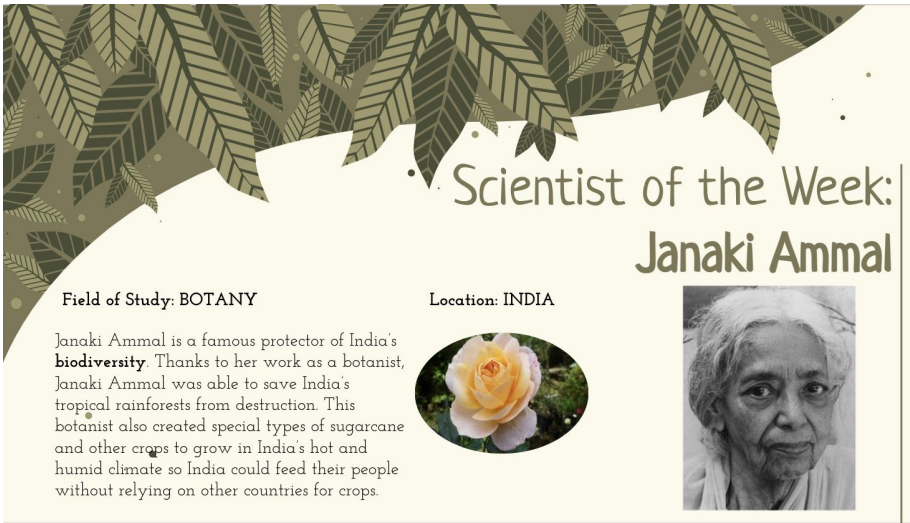
Teacher: *Emily Burke, Claire Henderson, Antonia Snyder, Kristie Tham, Peyton Smith*

Grade Level: *6th*

Time: *58 minutes*

Adapted from: <https://www.calacademy.org/educators/lesson-plans/flowers-seeking-pollinators>

Nearpod Link: <https://share.nearpod.com/e/zinJ4oTYrb>

<b>AZ State Science Standard:</b>	<p>6.L2U1.13:</p> <ul style="list-style-type: none"><li>• <i>Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.</i></li></ul>
<b>Learning Objective:</b>	<p>In student-friendly language, write your objective. Your objective is likely to target just one or two aspects of the Science Standard, as mastery of a Standard usually takes multiple lessons. A Science Standard should be broken down into smaller, more manageable objectives per lesson.</p> <ul style="list-style-type: none"><li>• <i>Students will be able to describe the relationship between plants and pollinators</i></li><li>• <i>Students will be able to describe how plants depend on other organisms for pollination and many pollinators depend on plants for food</i></li></ul>
<b>Language Objective:</b> (Optional)	NA
<b>Scientist of the Week:</b>	 <p>Scientist of the Week: <b>Janaki Ammal</b></p> <p>Field of Study: BOTANY</p> <p>Location: INDIA</p> <p>Janaki Ammal is a famous protector of India's <b>biodiversity</b>. Thanks to her work as a botanist, Janaki Ammal was able to save India's tropical rainforests from destruction. This botanist also created special types of sugarcane and other crops to grow in India's hot and humid climate so India could feed their people without relying on other countries for crops.</p>



Vocabulary	Materials
<p>Provide a bulleted, alphabetized list of words that students will hear, speak, write, and/or read about in the lesson. Please do not list more than 4-5 words. These words must be integral to developing content understanding. You may copy and paste these directly from the Scope and Sequence Guide document.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>● <i>Biodiversity</i></li> <li>● <i>Pollinator</i></li> <li>● <i>Coevolve</i></li> </ul>	<p>Provide a bulleted and hyperlinked list of relevant materials for the lesson.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>● <a href="#">Slides</a></li> <li>● <a href="#">Nearpod</a></li> <li>● <a href="#">Pollinator Data Sheet</a></li> <li>● <a href="#">Kahoot</a></li> <li>● <a href="#">YouTube Video</a></li> </ul>

**Seasonality:** (If more specificity is required, please note date/time range under the season)

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.

<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
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**Guiding Questions:**

- Why are pollinators critical for the Sonoran Desert ecosystem?
- What are the relationships between plants and pollinators?

5E Steps	Teacher Strategies	Student Behavior
<p><b>Engagement/Introductory Activity:</b> This is what you will do to get the students engaged in and excited about the topic of the lesson! It should also provide an opportunity for you to get an idea of what they do (and do not) already know, and the assumptions that they have going into the lesson.</p>	<ul style="list-style-type: none"> <li>● Give introduction of the teaching team</li> <li>● Introduce the scientist of the week</li> <li>● Nearpod exercise to draw favorite flower</li> <li>● collaboration board to answer questions:               <ul style="list-style-type: none"> <li>○ Why do plants have flowers?</li> <li>○ Why are there so many different types of flowers?</li> </ul> </li> <li>● Discuss how pollination works with a video: <a href="https://www.youtube.com/">https://www.youtube.com/</a></li> </ul>	<ul style="list-style-type: none"> <li>● Students will draw a flower on nearpod</li> <li>● Students will answer the questions by writing on a collaboration board</li> <li>● Students will view the video on how pollination works</li> </ul>



	<a href="https://www.youtube.com/watch?v=Smb5ZbykWQk">watch?v=Smb5ZbykWQk</a>	
<p><b>Exploratory Activity:</b> Provide step-by-step instructions on what the teacher and students will do in this activity to gain new skills and/or knowledge. Attach worksheets, PowerPoints, video links, or other material used to this section.</p> <p><b>~10 mins</b></p>	<ul style="list-style-type: none"><li>• Read the outline of the activity so students know what is expected</li><li>• Review the pollinator profiles as a class</li><li>• Conduct a poll of what pollinators students would be most interested in studying for the following activity (butterfly, bat, bee, moth, fly, bird) - tell them to remember their pick!</li><li>• Have students view the pollinator data sheet for one minute and determine traits of plants that their pollinator seems to prefer: <a href="https://wise.arizona.edu/sites/default/files/FlowersSeeKingPollinators_DataSheet.pdf">https://wise.arizona.edu/sites/default/files/FlowersSeeKingPollinators_DataSheet.pdf</a></li><li>• Ask students to determine what characteristics of plants their pollinator prefers and write this on the collaboration board</li></ul>	<ul style="list-style-type: none"><li>• Students will answer a poll of which pollinator they think would be most interesting to study for the activity.</li><li>• Review the pollinator profiles as a class</li><li>• Students will view the pollinator data sheet for one minute on their own, and determine traits of plants that their pollinator seems to prefer</li><li>• Students will write their pollinator and the trait they prefer on the collaboration board</li></ul>
<p><b>Explain:</b> What questions or prompts will you use to get students to explain their observations or to explain what the outcomes of the activity that they participated in were? This should provide an opportunity for students to communicate their new understandings, as well as to articulate what they still do not understand.</p>	<ul style="list-style-type: none"><li>• Ask students: Why do some pollinators prefer certain plant characteristics over others?(Question will be explained/answered after student gave their own guesses/ideas)</li><li>• (Question answered) Plants and pollinators have coevolved. Some pollinators prefer specific plant characteristics because of their own anatomical body characteristics. An example of this is a butterfly since they have long slender mouths they prefer flowers that are long and tube-like.</li><li>• Ask students: Why are pollinators important to the</li></ul>	<ul style="list-style-type: none"><li>• Students will answer the questions on nearpod using the collaborate board option by typing in their answers.</li><li>• Students will give their guesses to each question asked and comment on their observations for the data sheet.</li></ul>



	<p>health of an ecosystem?(Question will be explained/answered after students gave their own guesses/ideas)</p> <ul style="list-style-type: none"> <li>• (Question answer) 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.</li> </ul>	
<p><b>Extension Activity/Questions: Kristie</b> This section provides an opportunity for students to connect the knowledge that they have gained to other contexts – can they take what they learned and logically expand upon it, or apply it to alternate situations? Provide one or two additional ideas for activities that students can use to expand upon the new knowledge that they have gained.</p>	<ul style="list-style-type: none"> <li>• Introduce the Field Journal Action Plan.</li> <li>• Explain it is a weekly assignment they will add to throughout the semester             <ul style="list-style-type: none"> <li>○ Journal can be physical or digital</li> <li>○ Always include date, time of day, location</li> <li>○ One observation activity will be assigned each week, and used for our Story Board semester project</li> </ul> </li> <li>• Students are encouraged to observe different locations and record their surroundings.</li> <li>• Show an example and rubric</li> <li>• Give students 4 questions for a first entry before next class:             <ul style="list-style-type: none"> <li>• What is the job of a pollinator?</li> <li>• What flowers do I like the best?</li> <li>• When do I want to be active?</li> <li>• What kind of pollinator would I be?</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Students will be introduced to the Weekly Field Journal, what the project will entail each week, and what is expected to be included in each entry.</li> <li>• Answer 4 Q’s in your journal for next class             <ul style="list-style-type: none"> <li>○ What is the job of a pollinator?</li> <li>○ What flowers do I like the best?</li> <li>○ When do I want to be active?</li> <li>○ What kind of pollinator would I be?</li> </ul> </li> </ul>
<p><b>Evaluation Activity: Peyton</b> How will you evaluate whether or</p>	<p>Based on what students have learned in the previous activities, they will participate in a class-wide</p>	<p>Students are expected to log on to kahoot.it and join the game using the code. Students may use their</p>



<p>not the students have achieved the learning objective(s) of the lesson?</p>	<p>kahoot.it game which matches specific Sonoran Desert pollinators to specific Sonoran Desert plant species.</p> <p>This kahoot will also include vocabulary words, answers to guiding questions, and bonus questions.</p> <p><a href="https://create.kahoot.it/share/introduction-to-pollinators-sonoran-desert-pollinators/42cc26b9-e2d3-41be-80d3-e415b35cb6eb">https://create.kahoot.it/share/introduction-to-pollinators-sonoran-desert-pollinators/42cc26b9-e2d3-41be-80d3-e415b35cb6eb</a></p> <p>Kahoot Discussion Guide: <a href="https://biodiversityproject.arizona.edu/sites/default/files/Kahoot%20Question%20Discussion%20%28introduction%20to%20pollinators%29.docx">https://biodiversityproject.arizona.edu/sites/default/files/Kahoot%20Question%20Discussion%20%28introduction%20to%20pollinators%29.docx</a></p>	<p>name or a Sonoran Desert-themed username in order to join the game.</p> <p>Students will answer 10 questions about the lesson to the best of their ability. Students are also expected to participate in class discussion in between every question in order to explain why each answer is correct or incorrect.</p>
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**Component for Action Project:**

- Students will begin a field journal and make one observation entry, answering 4 questions about pollinators.