The Bio/Diversity Project
Lesson Title: Introduction to Biodiversity

Teachers: Juliana Williams and Tara Doyle
Grade Level: *5th and 6th*
Time: *1 hour*

AZ State Science Standard:	*5.L4U3.11:* ● *Construct an explanation based on evidence that the changes in an environment can affect the development of the traits in a population of organisms.*
Learning Objective:	● *Students will be able to explain how animals and plants have adapted to survive in the Sonoran Desert.* ● *Students will be able to define biodiversity and explain why it is important to life in the Sonoran Desert.*
Language Objective: (Optional)	N/A
Scientist of the Week:	

Scientist of the Week!

Rachel Carson (1907-1964)

- Born in Pennsylvania, US
- Marine biologist and author
- She wrote *Silent Spring,* a book about the negative consequences of pesticides.
- Her research, writing and activism resulted in the ban of a pesticide called DDT.

Vocabulary	Materials

● *Biodiversity*
● *Adaptation*
● *Ecosystem*
	Provide a bulleted and hyperlinked list of relevant materials for the lesson.
	
	For example:
	
	● *Facts about Rachel Carson*
	  ○ *https://kids.kiddle.co/Rachel_Carson#:~:text=Rachel%20Louise%20Carson%20*
	● *Nearpod link: https://share.nearpod.com/pkjRHZERH9*
	● *Nearpod* add-ons
	  ○ *collaborative board*
	  ○ *open ended questions*
	  ○ *field trip*
	  ○ *videos*
	    ▪ *Animal life in Saguaro National Park https://www.youtube*

	  Kahoot https://create.kahoot.it/share/8b4e1c9b-bfc 9-4b44-a95f-1a4d1304cfac

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

Monsoons July-Sept.	*Autumn* Oct.-Nov.	*Winter* Dec.- Feb.	*Spring* Mar.-Apr.	*Dry Summer* May-June

Guiding Questions:

  ❖ *What is special about the Sonoran Desert- is it different from other places you have lived in or visited?*
  ❖ *What do you think biodiversity might mean?*
  ❖ *What would happen to the biodiversity of the desert if the saguaros died?*

5E Steps	Teacher Strategies	Student Behavior
Engagement/Introductory Activity: 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.	1. Teachers will present a virtual reality image of the Sonoran desert. The teacher will then lead students through a 5 senses activity, asking them what they feel, hear, smell, taste and see in the desert. For each question, a volunteer answer will be taken. 2. Introduce the term "biodiversity" and break it down into	1. Students will enter the Nearpod virtual reality, which will appear in the slides of the presentation automatically. Here, they will explore an image of the Sonoran desert. They will be asked what they would feel, hear, smell,taste, and see in the desert if they were there. 2. Students will define

	"bio" and "diversity." Talk about the meaning of its parts to give some background. Then, ask students to define biodiversity in their own terms. If they don't know what it means, they will take their best guess. This will both introduce the topic and allow us to see their familiarity with the subject.	biodiversity using the "open ended question" function from Nearpod. They will type their response into the Nearpod function, which will automatically appear in the slides of the presentation.
Exploratory Activity: 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.	Teachers will run through the powerpoint. Nearpod activities will assess knowledge while videos, slides, and pictures within the powerpoint will help students explore. Nearpod activities: o *collaborative board:* students will write one outdoor activity they enjoy or are interested in o *open ended question:* students will make a short educated guess as to what "biodiversity" means o *field trip*: students will	Students will learn about plant ecology through the powerpoint. Pictures with examples of plant adaptations with provide a visual to help the student gain knowledge. Students will watch 1 short video to introduce animals of the desert and then dive further into animal adaptations.

	virtually look around the Sonoran desert, imagining they are there and engaging their senses to what they would experience in the desert. o *video:*students will see examples of animals in the Sonoran desert in a short video Animal video link: *Animal life in Saguaro National Park* https://www.youtube.com/watch?v=fC8qkUSHo_k Link to nearpod: https://share.nearpod.com/pkjRHZERH9	
Explain: 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	Teachers will talk about the Saguaro cactus and how it supports biodiversity in the Sonoran desert by providing food and shelter for a wide variety of organisms. Then, teachers will ask students to imagine what would happen if all the saguaros died due to humans	Students will learn about the ways that the Saguaro enables biodiversity. Then, they will discuss the hypothetical impact of the saguaro's disappearance. Through their answers, students will demonstrate an understanding of the concept of biodiversity.

still do not understand.	or climate change. What would happen to the animals that depend on the saguaro? Would the biodiversity of the desert increase, decrease, or stay the same?	
Extension Activity/Questions: 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.	Teachers will ask students to think about how humans adapt to the desert environment. Do we use any of the same strategies as plants and animals? How do we stay hydrated and cool in the summer? How do we protect ourselves from the sun?	Students will answer these questions using the open ended question function in NearPod.
Evaluation Activity: How will you evaluate whether or not the students have achieved the learning objective(s) of the lesson?	At the end of the lesson, the students will take part in a Kahoot which will cover important points from the entire lesson.	Then, students will answer questions about biodiversity and ecosystem function on Kahoot. https://create.kahoot.it/share/8b4e1c9b-bfc9-4b44-a95f-1a4d1304cfac