The Bio/Diversity Project

Lesson 1
Introduction to Biodiversity

Grade Level: 6th-8th
Lesson Length: 50 minutes

This lesson has been adapted from: Skillbuilder 3: How Diverse is Biodiversity?

AZ Science Standard	*6.L2U1.13* Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors. *8.L3U1.9* Construct an explanation of how genetic variations occur in offspring through the inheritance of traits or through mutations
Learning Objective	• Students will be able to provide a basic definition of the term biodiversity • Students will be able to explore the various groups of animals
Scientist of the Week	• Helia Bravo Hollis (1901-2001) • Botanist in Mexico City, Mexico. • Born in Villa de Mixcoac, Mexico. • Worked as a taxonomist and researched the Cactaceae family. • First woman to graduate with the title of biologist in Mexico. • Helia published over 170 articles, 2 books, and described 60 unidentified plant species. She even has some species named after her! 

Vocabulary	Lesson Materials
Biodiversity: the variety of life	• Introduction video • Introduction to Biodiversity Powerpoint • Introduction to Biodiversity PWPT in Spanish.pptx

	• graphing tool: https://nces.ed.gov/nceskids/createagraph
	• Google Jamboard
	  • Sticky notes (2 pads)
	  • Scissors (2 pairs)
	  • Colored pencils (class set)
	  • Two large pieces of paper, such as butcher paper (Half a class)

Guiding Questions	
• What kinds of things live in the Sonoran Desert? • What is the difference between a living and nonliving thing?	

Teacher Preparation:

- Draw a table chart on each large piece of paper, such as butcher paper. Organize with 5 columns and 2 rows.

Engagement Activity (5 min):

- Display PowerPoint
- Introduce the lesson topic
- Present Scientist of the Week and talk about significance of their work related to the topic of this lesson
- Pick a 1 minute section of this video that highlights the biodiversity in the Sonoran Desert and play it
  - Ask students to think about the plants and animals that they recognize while they watch
  - When the video is finished, ask students if they can name some of the organisms that were in the video & if they have seen these things before in nature.

Exploratory Activity (15 min):

- Split students into three roles: typer, artist, thinker 1, and thinker 2
- The typer will use Google Jamboard to record each animal shared by the group onto a virtual sticky note.
- The thinker will come up with living things that match the requirements of the activity.
- The artist will draw and label the living things shared by the thinker.
- Explain the instructions: students will be provided with sticky notes, and in their assigned roles will write the name of one animal or plant on each of them and draw the plant or animal below the name. The goal is for each student to write and draw 5 different living things, and if they have extra time they can write and draw 5 more, for a total of 10.
- After going over instructions, open Google Jamboard and do a tutorial on the tools needed for the activity.

- Ask students to work together in pairs or small groups of 3-4 people next to them to place the living things into groups. While students work in small teams, walk around the classroom, and ask the students why things belong in certain groups, and what characteristics make up a group (ie: animals with wings make up the category for birds).
- As a group, they will go into Jamboard and organize their sticky notes into the outlined categories below.
    - First, start by asking teams to move their sticky notes into 2 categories: plants & animals
    - Call students back together, and ask teams to move them into 3 categories: Plants; Animals that eat meat; & Animals that do not eat meat
    - Call students back together, and ask teams to move them into 4 categories: Plants; Animals that eat meat & Animals that do not eat meat & Animals that live in water
    - Lastly, call students back together, and ask teams to move them into as many categories as they can. Prompt students to label the paper with a name for each category at the top of each table column.
    - When finished, ask team volunteers to share if they think their team came up with the most categories. Have a student volunteer read the category names out loud to the class. Tally the total categories to see which team came up with the most and do a round of applause for the winning team.

Explain (5 min):

- Open up a discussion by asking students what they noticed.
- Ask the class: "How did you come up with the different categories? What similarities and differences did you notice between the animals? Did one category have more sticky notes than the others?"
- Use their findings to introduce the concept of genetic variation (science standard).
- Ex: Team says that all species in the Reptile category have scales. Ask: "Do any other groups have scales? Why not?"
- Ask "why is variety a good thing?"

Bonus Activity: Exploring the importance of data visualization (10 mins)

- Open this graphing tool: https://nces.ed.gov/nceskids/createagraph
- Ask each group to share the living things they recorded
- In the graphing tool, insert the class data into the tool and explore the graphs provided.
- Ask which graph they would choose and why.
- Discuss why choosing the right graph is important.
- Compare the classroom's biodiversity to the Sonoran Desert.

Evaluation Activity (5 min):

- Write the term biodiversity on the butcher paper. Underline "bio" and "diversity"
    - Ask for a student volunteer to be a scribe for the activity
    - Ask students to form a collaborative definition of the term, building off of each other 's ideas to make a working definition. Write down any ideas or pictures onto the paper.
- Share the definition of biodiversity as the "variety of life."