Lesson 1: Engage

Big Idea: In the same geographical area, populations of a species have slight anatomical differences due to natural selection that led them to be specially adapted to their specific environment.

Lesson Objective: Students will compare and contrast populations of a species, and predict why they are anatomically different.

Lesson Essential Question: Why do populations of the same species look slightly different?

Materials Needed: Fact Cards

Chart paper/butcher paper Sentence Strips Markers

Vocabulary: population, species, individual, breed, organism,

Lesson Flow:

1. Think, Write, Pair, Share (Engage)

- a. Teacher poses the question: *There are 178 different breeds of dogs (Labradors, German shepherds, Chihuahuas). How do you think the world got this many different types of dogs?*i. American Kennel Club (2014).
- b. Students write down an initial response on their worksheet.
 - i. Student response will vary: common wolf ancestor, humans choosing for different traits, reproduction, etc.
- c. Students discuss what they initially wrote with their table partners.
- d. Students can revise what they wrote based on what they discussed as a table.
- e. Teacher leads class-wide discussion while charting responses on the board. Students will come back to this question at the end of class.

2. Find the similarities and differences (Explore)

- a. Teacher introduces the lesson essential question: *Why do populations of the same species look slightly different?*
- b. Teacher divides class up into 4 groups and passes out the fact cards (one species per group)
- c. Students will observe fact cards of different individuals of the same species. On their worksheet, students will record their observations what are the similarities and what are the differences.
 - i. The observations can come from both the pictures and information on the cards. Students will need to make observations about the anatomical structure and also the environment in which the individuals live.



- d. Students will then find others who had the same species as they did to compare observations. Students will revise their observations as necessary.
 - i. While doing this, students need to support their observations with evidence. Students need to be using academic language sentence starters.
 - 1. "One observation I/my group made was <u>(Describe the observation)</u>.
 - 2. "I agree with the observation that <u>(Summarize the observation)</u> because _____."
 - 3. "I disagree with the observation that <u>(Summarize the observation)</u> because _____."

3. Predict why there are similarities and differences (Explain)

- a. In groups students will make predictions about why there are differences in species.
 - i. "I predict there are differences in the species of <u>(organism)</u> because _____
- b. Students will brainstorm individually first, then share with their group using the listen/summarize format.
 - i. Student A starts by sharing their prediction.
 - ii. Next student summarizes A's prediction then states their own. This continues until the last student has shared.
 - 1. "<u>(Student Name)'s</u> prediction was <u>(summarize prediction)</u>. My prediction is ".
 - iii. The last student shares their prediction, and Student A must summarize.
- c. Students will discuss the predictions to revise and create one group prediction that they write on a sentence strip.

4. Class Conclusion (Extend)

- a. Student representatives from each group will explain to the class their thinking and evidence for their prediction.
- b. Student representatives will paste the sentence strip to the chart paper titled "*Why do populations of the same species look slightly different?*"
 - i. Students will refer back to this chart paper during lesson 4 and 5. Post the chart paper somewhere visible in the room for students to ponder during the lesson series.

5. Revision of TWPS (Evaluate)

a. Students will revise what they wrote for the engage question "*There are 178 different breeds of dogs (Labradors, German shepherds, Chihuahuas). How do you think the world got this many different types of dogs?*" based on what they have observed or drawn conclusions from in this lesson.



Are They The Same?

Part 1: What Do You Observe?

Observe the info card at your table. What similarities between the organisms do you see? What differences do you see? What do you notice about the environments the organisms live in? Record your observations in complete sentences below. Be sure to include as much detail as possible.

Assigned Species: _____

Similarities	Differences	
Dent 2. Why Dece This Honora	l	
I predict there are differences in the species of		hecause
	(organism name)	
My group predicts there are differences in the spec	cies of	because
	(organism name)	
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