Variations in Populations

Engage

Match the description of the adaptation to the picture.

Description	Picture	
1. The golden eagle can soar for hours as it searches for prey. Its wings catch the wind to keep it flying.		☐
2. A duck's foot with a tough membrane between the toes is a natural paddle, making swimming very easy.		☐
3. The crossbill uses its beak to separate the scales of pinecones and get at the seeds.		☐
4. The ptarmigan is found in the Arctic that is snow-covered most of the year.		☐
5. The foot of the evening grosbeak can curl tightly around a branch, allowing it to perch safely in trees.		☐

Questions:

1. How do the wings of the golden eagle help it survive?

_____

2. How does the beak of the crossbill help it survive?

_____

3. How does the foot of the grosbeak help it survive?

_____

4. How does the foot of the duck help it survive?

_____

5. How does the color of the feathers of the ptarmigan help it survive? _____

Explore

Materials:

Beaks: clothespin, tweezers, large binder clip, small binder clip, spoon

Food in each habitat: rice, beans, rubber bands (worms), marbles

cups (stomach) per student, tray or shoe box per table

What To Do:

1. Each student in the group will choose one of the beaks.
2. Each student will get a plastic cup.
3. You are now a very hungry bird. The tool you have selected in your "beak". You can **only** use your beak to pick up food.
4. The cup is your stomach. It must remain upright at all times. You must hold your beak in one hand, and your stomach in your other hand, close to your body. Only food that has been "eaten" can be placed in the cup.
5. You may only eat one piece of food at a time.
6. The food items are in your "habitat" (box). When the teacher says GO, you will have 20 seconds to feed (or until the food runs out). Collect as much food as possible until the teacher says STOP.
7. When the teacher says STOP, empty your stomach and count the contents and record in the My Data Table below.

MY DATA TABLE

My beak	# of rice grains	# of beans	# of rubber bands	# of marbles

8. Share your date with the members of your group and add them together.
9. Place the groups data in the data table on the next page.

GROUP DATA TABLE

Beak	# of rice grains	# of beans	# of rubber bands	# of marbles
Clothespin				
Small Binder clip				
Large Binder clip				
Spoon				

Questions:

1. Which beak was best adapted to each type of food?

Clothespin _____

Small binder clip _____

Large binder clip _____

Spoon _____

2. Which beak was least adapted to each type of food?

Clothespin _____

Small binder clip _____

Large binder clip _____

Spoon _____

3. These birds have arrived on an island where there are only marbles to eat. Which of these birds would be able to get food? _____

4. What would happen to the other birds?

_____

5. How does this type of beak help the bird to survive?

_____

How Populations Survive

Explain

Variation

Population

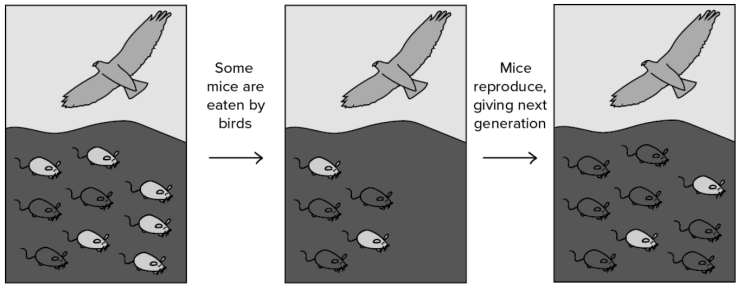
Genetic Variation

Environmental Variation

Elaborate

What To Do:

1. Look closely at the three pictures below.
2. Answer the questions.



Questions:

1. What color are the mice? _____

2. What color is the land they live on? _____

3. What happened to the light color mice?

_____

4. Why do you think this happened? _____

_____

5. Which variation in fur color helped the mice survive?

_____

6. Explain what is happening in these pictures in terms of variation, population, and survival.

_____

_____

_____

_____

_____

_____

Evaluate

Name _____ period _____

EXIT TICKET

Variations in Populations

1. Variations in populations are important because –

A. They allow some organisms to be pretty.
B. They allow some organisms to be smart.
C. They allow some organisms to survive better than others.

2. What is a population?

A. One individual in an area.
B. A group of individuals living in one area and interacting with each other.
C. A group of different kinds of animals in an ecosystem.

3. An example of a variation in a population is –

A. All of the population has fins.
B. Some of the population has larger fins.
C. Some of the population is dead.

4. What will happen if a food source is not suitable to be eaten by an animal?

A. They will be able to change what they eat.
B. They will stop eating.
C. They will either move or die.

5. How do variations happen in a population?

A. Only through genetics.
B. Only through the environment.
C. Through both genetics and the environment.