

**Lesson Topic:** Natural Selection

**Objective:**

Students will be able to:

1. Identify features/adaptations of animals that help them to survive in an environment.
2. Describe and apply the terms natural selection and “survival of the fittest.”
3. Manipulate tools to experiment with beaks in the wild.

**Time Required:** 75 minutes

**Materials Needed:**

- Teacher computer with internet access
- Projector/Smartboard
- 1 computer/laptop/iPad per student with internet access
- Cup of raisins (1per group)
- Cup of bird seed (1 per group)
- Paper plate (1 per group)
- Clothes pins (1 per group)
- Tweezers (1 per group)
- Cup (1 per group)
- Natural Selection Worksheet (1 per student)

**Teacher Preparation:**

- Assign a Legends of Learning Instructional [Quick Play](#) playlist for the day(s) you will be teaching the lesson.
  - Instructional - Middle School - Natural Selection
- Make copies of Natural Selection Worksheet (1 per student)
- Gather all materials for the Bird Beak Activity

**Engage (10 minutes):**

1. Pass out the Natural Selection handout (attached).
2. Tell students, “Choose an animal from the wild. You can be any animal you want.”
3. “On your Natural Selection Worksheet, fill out the following information:
  - i. What is the name of the animal you chose to be?
  - ii. What color(s) is your animal?
  - iii. Name two other features of your animal (claws, sharp teeth, long feathers etc).
4. After students are finished writing out the details of their animal, read the Environmental Scenario (attached).
5. Ask students to consider these questions, but do not provide an answer quite yet: “Imagine your animal living in this environment.
  - i. Would it be able to survive? Why or why not?
  - ii. Could it find food and shelter? How or why not?” (Yes, if it was suited for cold climates and adapted to live in the snow. No, if it is an animal that is accustomed to warm climates with no way to keep warm or find food).

**Explore (20 minutes):**

1. Have your students [sign in to Legends of Learning](#). Instruct students to complete the Instructional playlist.
2. Assist students as needed during game play, pause playlist if you need to address content or questions to the entire class.

**Explain (15 minutes):**

1. Read the Environmental Scenario again.
2. Tell students, "Think back to your animal and its color and features that you chose."
3. Ask for volunteers of any student who chose an animal that would not survive long in this cold weather.
  - a. Have them stand up and explain their animal, color and features, and why they believe this environment would be difficult to survive in.
4. Then, ask the students if anyone chose an animal that would benefit from this environment and really thrive in the cold snowy weather.
  - a. Have them stand up and explain.
5. Tell students, "Any organism that is better adapted and better suited to live in an environment will have a better chance of survival and produce offspring. This is called natural selection."
6. Tell students, "The animals that had white fur and could live on little food, or had the ability to find food in this climate, were better able to survive to reproduce. A flamingo, for example, would not survive very long in a snowy climate and would be easily hunted with their pink color."
7. Tell students, "Natural Selection weeds out the weaker, lesser animals. The animals and plants that are stronger or faster will survive and pass on those traits to their children. Animals that are able to adapt to a changing environment will survive longer as well."
8. Natural Selection is sometimes called 'survival of the fittest' because the organisms better fit for the environment will survive."

**Elaborate (20 minutes):**

1. Tell students to refer to the Bird Beak Activity section on their Natural Selection handout and read the directions together (maybe even do a demonstration to make sure students complete the activity correctly).
2. Pass out all materials to each partnership or small group
  - a. Paper plates, raisins, bird seed, tweezers, clothes pins
3. Walk around and monitor as students work.
4. When students are finished, go through the questions together as a group.
  - a. 1. Which beak picked up the most raisins?  
Answers will vary, but likely the clothes pin.
  - b. 2. Which beak picked up the most bird seed?  
Answers will vary, but likely the tweezers.
  - c. 3. Why would birds need to have different shaped beaks?  
If they eat different things, their beaks will need to be different shapes to make eating easier. Otherwise, they may choose to eat something else. If not, they may not live a long life.
  - d. 4. How would their beak shape help them in their environment?  
Having enough food to feed themselves and their young is so important to their

survival. If they have a beak shape that helps them eat the food in their environment that will help them live longer, healthier lives

- e. 5. Survival of the fittest means that the organism best suited for their environment (most fit) will survive. The bird with the clothes pin beak was best suited to eat raisins. If the clothespin and the tweezer bird lived in an area full of raisins, the tweezer bird would be out of luck, and the clothespin bird would be the fittest.

5. Collect and clean up all materials.

**Evaluate (10 minutes):**

1. Read the Environmental Scenario one last time.
2. On Part 3 of their Natural Selection handout, ask students to choose an animal, color, and 2 features that would be suited to live in this environment
3. Then, write a paragraph answering the question about natural selection.
4. Collect the paragraph for a grade as needed.

**Additional Lesson Strategies:**

- To use Legends for additional instruction, create a [custom playlist](#) with an [instructional game](#) and pre and post [assessment](#).
- To use Legends for a quick formative assessment, create a 5-question [assessment](#) in a [playlist](#).
- To use Legends for a student-directed experience, create a [targeted freeplay](#) playlist.
- Encourage students to play on their own at home in [Legends of Learning: Awakening](#) for a student-driven experience including avatars, battling, and quests all centered around topics they are covering in class.



## **Environmental Scenario**

A cold snap has rolled in, covering the area with a blanket of snow. The temperature dropped dramatically. The lakes and rivers are now a thick layer of ice, and the ocean is full of icebergs. The trees have lost their leaves and most of the vegetation has died away.

Name: \_\_\_\_\_

## Natural Selection Worksheet

### Part 1:

- What is the name of the animal you chose to be?
  
- What color(s) is your animal?
  
- Name two other features of your animal (claws, sharp teeth, long feathers etc).

### Part 2:

## Bird Beak Activity

1. Take the cup of raisins and cup of bird seed and pour them onto the paper plate.
2. Then, one partner will have 10 seconds with the tweezer beak (tool), to try and pick up as many raisins (one piece at a time) as possible and put it in the cup. Then, switch so that the other partner will have a turn (Remember to return the raisins back to the plate after each turn).
3. Record how many raisins **you** pick out in the table below.
4. Then, repeat that process trying to pick up the bird seed one piece at a time.

5. Last, repeat steps 1-3 with the clothes pin beak (tool).

<b>Beak</b>	<b>Raisins</b>	<b>Bird Seed</b>
Tweezers		
Clothes Pin		

Answer the questions based on your results.

1. Which beak picked up the most raisins?
2. Which beak picked up the most bird seed?
3. Why would birds need to have different shaped beaks?
4. How would their beak shape help them in their environment?
5. Using this activity as an example, what does “survival of the fittest mean?”



**Part 3:**

Choose an animal that would best survive in the Environmental Scenario. Describe its color and at least 2 physical features that help it to survive in this environment.

Animal: \_\_\_\_\_

Color: \_\_\_\_\_

2 Features: \_\_\_\_\_

In the space below, discuss natural selection and use your animal as an example.

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## **Answer KEY**

Answer the questions based on your results.

1. Which beak picked up the most raisins?

**Answers will vary, but likely the clothes pin.**

2. Which beak picked up the most bird seed?

**Answers will vary, but likely the tweezers.**

3. Why would birds need to have different shaped beaks?

**If they eat different things, their beaks will need to be different shapes to make eating easier. Otherwise, they may choose to eat something else. If not, they may not live a long life.**

4. How would their beak shape help them in their environment?

**Having enough food to feed themselves and their young is so important to their survival. If they have a beak shape that helps them eat the food in their environment that will help them live longer, healthier lives.**

5. Using this activity as an example, what does “survival of the fittest mean?”

**Survival of the fittest means that the organism best suited for their environment (most fit) will survive. The bird with the clothes pin beak was best suited to eat raisins. If the clothespin and the tweezer bird lived in an area full of raisins, the tweezer bird would be out of luck, and the clothespin bird would be the fittest.**