

Lesson Topic: Adaptation**Objective:**

Students will be able to:

1. Understand the three main types of adaptations (physical, behavioral, and physiological) and examples of each
2. Use knowledge of adaptations to create a creature with appropriate adaptations based on a given environment

Time Required: 110 minutes**Materials Needed:**

- Teacher computer with internet access
- Projector/Smartboard
- 1 computer/laptop/iPad per student with internet access
- Adaptation handout (attached)
- Adaptation Creation handout (attached)

Teacher Preparation:

- Assign a Legends of Learning Instructional [Quick Play](#) playlist for the day(s) you will be teaching the lesson.
 - Instructional - Middle School - Adaptation
- Assign a Legends of Learning Content Review [Quick Play](#) playlist for the day(s) you will be teaching the lesson.
 - Content Review - Middle School - Adaptation
- Make copies of Adaptation handout and Adaptation Creation handout (1 per student)

Engage (10 minutes):

1. Show video on types of Adaptations to class. While watching have students note the three main types of Adaptations and examples of each on the Adaptations handout.
 - a. [Adaptations](#)
 - b. Have students come up with examples of the three types of adaptations that could be appropriate for the snail at the end of the video.

Explore (25 minutes):

1. Have your students [sign in to Legends of Learning](#). Instruct students to complete the Instructional playlist.
2. As students complete the assigned game, students should fill out the Adaptation handout with any more adaptation examples they find. They should put the adaptation type under the correct category.
3. Assist students as needed during game play, pause playlist if you need to address content or questions to the entire class.

Explain (10 minutes):

1. Review answers to Adaptations handout by drawing diagrams on board or using Smartboard.

2. Explain to students that they are going to use their knowledge of Adaptations to create their own adaptations for a creature based on its habitat.

Elaborate (45 minutes):

1. Introduce the Adaptation Creation project and go over directions as needed.
2. Have students work through Adaptation Creation project, filling out all parts of the hand out.
3. After students have designed a creature with adaptations, they can use the back of the hand out to draw and label their creature and adaptations.
4. Assist students as needed.

Evaluate (20 minutes):

1. After students have finished project, give student volunteers time to share their creature/adaptations.
2. Have your students [sign in to Legends of Learning](#). Instruct students to complete the Content Review playlist.
3. [Analyze student results](#) to determine what concepts need to be a focus for reteaching.

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.



Adaptations

Directions: While watching the video, record the three main types of adaptations and examples of each one. Include as many as you can.

→ _____

◆ Examples include: _____

→ _____

◆ Examples include: _____

→ _____

◆ Examples include: _____

Adaptations for the Snail:

Physical/ Structural: _____

Behavioral: _____

Physiological: _____



Adaptation Creation

Directions: Based on the passage below, you need to create five (5) adaptations an animal should have to survive in this habitat. Be sure to include reasons why the adaptation is necessary.

The habitat that the animal lives in is a tropical volcanic island with one active volcano that erupts several times per year. The environment is very warm and humid, with temperatures that can exceed 100 degrees on many days. Rain usually happens once per day and storms build up in the early afternoon. Much of the island has rocky outcroppings and cliffs which many of the most useful and nutritious food sources are on top of.

The leaves on most plants are very tough and are difficult to eat and digest. Many of the plants are also very tall, with leaves that are high off the ground. Trees on the island have delicious and nutritious fruits, but they have a very tough skin and are difficult to break into. The fruits also have seeds inside them that are poisonous to animals if they are eaten.

This animal has several predators on the island. One is a large jungle cat, which hunts primarily by using sight to locate and razor sharp teeth and claws to bring down its prey. The other is a wild dog species similar to a wolf that hunts in packs of 3 or 4. These animals use their strong sense of smell to track and locate their prey, but it takes all members of the pack to bring down larger prey.

Adaptation	Why



Adaptation Creation

Directions: Now that you have created adaptations for a creature on this island, draw a diagram of what your creature would look like. Be sure to label it's adaptations and draw any parts of the habitat that go with the adaptation.

(Ex. strong teeth for grinding leaves and an example of the leaves)



Adaptations Key

Directions: While watching the video, record the three main types of adaptations and examples of each one. Include as many as you can.

→ Physical/ Structural

- ◆ Examples include: horns, fins, armour, camouflage, brightly colored flowers

→ Behavioral

- ◆ Examples include: herding, socialization, mimicry, setting a trap

→ Physiological

- ◆ Examples include: produce milk, poisonous

Adaptations for the Snail:

Physical/ Structural: shell, eye stalks, muscular foot

Behavioral: retract into shell for protection, courtship to attract mates, hibernation

Physiological: producing mucus, can produce sex cells from both genders

Adaptation Creation Key

Directions: Based on the passage below, you need to create five (5) adaptations an animal should have to survive in this habitat. Be sure to include reasons why the adaptation is necessary.

The habitat that the animal lives in is a tropical volcanic island with one active volcano that erupts several times per year. The environment is very warm and humid, with temperatures that can exceed 100 degrees on many days. Rain usually happens once per day and storms build up in the early afternoon. Much of the island has rocky outcroppings and cliffs which many of the most useful and nutritious food sources are on top of.

The leaves on most plants are very tough and are difficult to eat and digest. Many of the plants are also very tall, with leaves that are high off the ground. Trees on the island have delicious and nutritious fruits, but they have a very tough skin and are difficult to break into. The fruits also have seeds inside them that are poisonous to animals if they are eaten.

This animal has several predators on the island. One is a large jungle cat, which hunts primarily by using sight to locate and razor sharp teeth and claws to bring down its prey. The other is a wild dog species similar to a wolf that hunts in packs of 3 or 4. These animals use their strong sense of smell to track and locate their prey, but it takes all members of the pack to bring down larger prey.

Adaptation	Why <i>*accept reasonable answers*</i>
- Very light/no fur - Sweat glands	To keep the animal cool
- Strong teeth - Specialized digestive system - Long neck	Grinding leaves To digest tough leaves For reaching high plants
- Camouflage coloring	To avoid cats
- Tough skin or armored plating	To protect from sharp teeth and claws
- Large size - Speed	To fend off dogs To outrun predators