

Adaptations

5E Lesson

The 5E model is a scientifically proven method to improve student engagement and learning in your classroom

- ✓ Engagement
- ✓ Exploration
- ✓ Explanation
- ✓ Elaborate
- ✓ Evaluate



Complete Teacher Instructions

Adaptations 5E Lesson

Grades 7-10	Adaptations	Ongoing Less
Lesson Objective: Students will learn about: • Adaptations • Physical adaptations • Behavioral adaptations • Adaptations for specific habitats		
Possible Student Misconceptions: • Natural selection produces perfection. • Organisms control how they adapt. • Natural selection gives organisms what they need. • All traits are adaptations. • The biggest and strongest organisms of a species are the best adapted. • All behavior is learned.		
Materials: • 1 device (smartphone, Chromebook, laptop, tablet, or computer) per 3 • A means of projecting a PowerPoint presentation • Internet access • General classroom objects		
Teacher Notes: ➤ All videos can be accessed directly from the PowerPoint. To retrieve the icon while in slideshow mode and it will automatically open for you. If it doesn't, right-click on the image and click Edit Hyperlink or something similar. ➤ I've created a video walkthrough if needed. It can be accessed here - https://youtu.be/oCIKIP9SaDQ ➤ I don't believe in long lessons. If you feel your students are losing their focus, stop the PowerPoint and give them a 5-minute break. If you'd like to see more of my video collection here - http://www.teachwithferqv.com/ are tons of brain-break videos to choose from all grouped by category.		

Adaptations – 5E Lesson

Engagement Phase Your students will watch the video 'Winter Adaptations in 3 minutes' and complete the following. 1. Watch the video and answer the questions.	
The video can be found here - https://www.youtube.com/watch?v=vferxLk6Qs	☐
Teacher Notes: - The video is about three minutes long - You may need to show the video more than once or pause when an answer is given to one of the questions.	☐ ☐ ☐
Exploration Phase Exploration – Lab Station Activity • In groups of 2-3, have your students complete <i>Exploration – Lab Station Activity</i>. Once they're done, they will submit their passport to you.	
Teacher Notes: • The complete instructions for my Lab Station activity can be found in the <i>START HERE – Instructions</i> file.	☐ ☐ ☐
Explanation Phase PowerPoint Lessons • The lesson is found in the folder – <i>Explanation – Adaptations Lesson</i> • This lesson is designed to be completed over one day • There are multiple embedded videos and plenty of opportunity to engage, interact and check for your students' understanding throughout the lesson • The lesson covers the following topics: ➤ Adaptations ➤ Physical adaptations	

➤ Behavioral adaptations ➤ Adaptation inquiry	Goals ☐ Students develop understanding of the content ☐ Observations and experiences are discussed and critiqued ☐ Students develop vocabulary ☐ Students are able to connect the content presented to previous experiences
Teacher Notes: • All videos can be accessed directly from the PowerPoint. To retrieve them, click on the video icon while in slideshow mode and it will automatically open for you. If they don't open, right-click the image and select Edit Hyperlink or something similar. • I've created a video walkthrough if needed. It can be accessed here - https://youtu.be/oCIKIP9SaDQ • I have also enclosed a .PDF version of both the teacher and student versions.	
Elaborate Phase Elaborate – Reading Your students will complete – <i>Elaborate – Physical Adaptations</i> . This reading will require your students to move beyond what was covered directly in the lesson and allow them to further develop their understanding.	Duration: 1 hour Teacher Role – Facilitate learning and keep students focused
Teacher Notes: - Students will work individually or in small groups - This reading contains 7 comprehension questions and 2 extension questions. It is fully editable so I encourage you to remove any question(s) in order to meet the needs of your students as well as your time frame.	Goal ☐ Students use their newly obtained knowledge to propose solutions and extend their learning to new situations
Evaluate Phase Quiz Have your students complete – <i>Evaluate – Adaptations Quiz</i>	Duration: 30 min Teacher Role – Distribute and collect evaluation
Teacher Notes: ➤ It's sometimes best to have the students peer evaluate ➤ Placing students in small groups and having them exchange papers to mark will accomplish two things 1) Provide immediate feedback on the questions they just completed 2) Significantly reduce your marking time ➤ Peer evaluation is not needed, only suggested when appropriate	Goal ☐ Students are given the opportunity to demonstrate their understanding and evaluate their own progress

Each phase is clearly described

A Complete Lesson

Adaptations

- Adaptations are characteristics which allow a species to survive
- If an organism survives into adulthood, it will provide them an opportunity to have children
- These children would most likely have similar characteristics, which will allow them to also have offspring
- Examples include: camouflage, hibernation, having hair, being intelligent, etc.



← Make sure your students are on track

Student copies with blanks

Videos embedded right into your slideshow

Behavioral Adaptations

- _____
- These adaptations can be learned or be something the animal is automatically born knowing (aka instinct)
- Many are used to escape from predators or capture prey
- Examples: burrow underground, live in trees, dwell in groups, etc.



Desert Adaptations



- Watch the following video on desert adaptations and list them below along with the reason

Interactive and Engaging Activities

Physical Adaptations

Scientific Reading Comprehension Article and Extension Activity

Physical Adaptations – Case Studies

Introduction

Adaptations are characteristics of organisms that make them suited to their environments. The two main types of adaptations are **physical** and **behavioral**. Physical adaptations are physical features, such as coat color, body size, leaf shape, or root system. Behavioral adaptations are the things organisms do to survive in their environment, such as digging for food, hibernating, migrating, and so on. In this article, we will take a look at several physical adaptations of animals and plants in their environments.

Arctic Physical Adaptations to Harsh Environments

Two animals that are physically adapted to harsh environments are the Arctic fox and the reindeer. The Arctic fox lives in a snowy, cold climate, and the reindeer lives in a cold, dry climate.

The Arctic fox is adapted to survive in temperatures down to -50°C (-58°F). Its fur is white in winter and turns brown in summer. Its ears are small and rounded to reduce heat loss. Its legs are long and powerful to help it run through deep snow. Its nose is large and wrinkled to help it warm the air it breathes. Its tail is long and bushy to help it stay warm. Its paws are large and furry to help it walk on snow and ice.

The reindeer is adapted to survive in temperatures down to -40°C (-40°F). Its fur is thick and brown in winter and turns lighter in summer. Its antlers are large and branched to help it fight off predators. Its legs are long and powerful to help it run through deep snow. Its nose is large and wrinkled to help it warm the air it breathes. Its tail is long and bushy to help it stay warm. Its paws are large and furry to help it walk on snow and ice.

Plant Physical Adaptations to Harsh Environments

Two plants that are physically adapted to harsh environments are the saguaro cactus and the mangrove tree. The saguaro cactus lives in a hot, dry climate, and the mangrove tree lives in a wet, salty climate.

The saguaro cactus is adapted to survive in temperatures up to 50°C (122°F). Its body is thick and fleshy to store water. Its leaves are small and waxy to reduce water loss. Its roots are deep and wide to help it absorb water from the ground. Its spines are sharp and pointed to help it defend itself from predators. Its flowers are large and colorful to attract pollinators.

The mangrove tree is adapted to survive in temperatures up to 30°C (86°F). Its roots are thick and woody to help it support its weight in the water. Its leaves are small and waxy to reduce water loss. Its flowers are small and green to help it blend in with the water. Its fruit is large and fleshy to help it attract fruit-eating animals.



Improve your students' **Literacy** and **Analysis Skills**, use as an **Emergency Substitute Plan**, or create **Applicability** in your classroom

Physical and Behavioral Adaptations Lab Station Activity



7 Lab Station Activities to get your kids out of their seats and engaged in their learning

Get away from tired practices and unengaged students



Provide a Scientifically-Proven means of instruction



Incorporate Technology and Increase Collaboration

