Collaging Evolution

Grade 8

Subject life science

Time 1 week or more

Description

In this lesson, students will try to predict what some of our planet's fauna might look like in a few million years. Utilizing both their imaginations and research skills, students will design an entirely new species by collaging together various magazines, images, and paper scraps. With this project, students can learn the basics of adaptation and evolution while also engaging with their own creativity.



State Standards

8-LS4-4 : Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Learning Objectives

Students will be able to create a collage that demonstrates how natural selection operates in evolutionary processes.

Students will be able to analyze how an organism's adaptations help them maneuver through their habitat.

Students will be able to describe how naturally selected traits can add up and result in big changes to an organism over a long time.

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Materials

Required:

- Magazines *(recommend National Geographic, Smithsonian, etc.)*
- Construction paper *(in various colors)*
- A printer
- Mixed media paper
- White glue
- Scissors
- Rulers

Additional:

- Paint brushes to spread glue
- Washi tape *(for further decoration)*
- Acrylic paint pens *(for further decoration)*
- Colored pencils *(for further decoration)*
- Modge Podge *(for further decoration)*



(Your set up might look something like this)

Assessment Questions

What pressures are driving your animal towards a new environment?

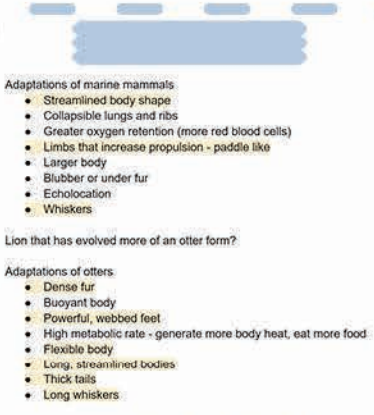
What adaptations does your speculative animal have?

How does your speculative animal's adaptations help it better navigate its environment?

Instructions



1 Assign an animal to your students that is currently experiencing habitat loss or venturing into new ecosystems or biomes. For myself, I chose Namibia's 'marine' lions, which recently started to hunt marine wildlife among the country's coastal beaches.



Adaptations of marine mammals
- Streamlined body shape
- Collapsible lungs and ribs
- Greater oxygen retention (more red blood cells)
- Limbs that increase propulsion - paddle like
- Larger body
- Blubber or under fur
- Echolocation
- Whiskers

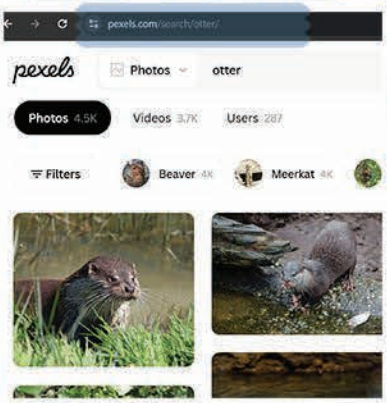
Lion that has evolved more of an otter form?

Adaptations of otters
- Dense fur
- Buoyant body
- Powerful, webbed feet
- High metabolic rate - generate more body heat, eat more food
- Flexible body
- Long, streamlined bodies
- Thick tails
- Long whiskers

2 Students will then do some research on their animals. During this time, they will find out what new environments their animal is venturing into or could migrate to in response to habitat loss. After establishing an environment, students will look into what other wildlife lives there, and what adaptations they have. They can then start brainstorming on what adaptations their animals could possibly evolve in the far future. For context, I have my notes pictured to the side to show what this process might look like.



3 Now, it is time to start officially collaging! First, have students look through magazines and cut out pictures of their animal and other similar animals. They should be thinking about what images they can use and manipulate to depict their fictional organism's adaptations.



4 However, some of the animals your students have might be quite hard to find in magazines. Due to this, I would recommend allowing students the option to find images of animals on the internet if needed, and printing them out if you have the resources. Unsplash.com and Pexels.com have a wide selection of royalty free images to choose from, so I would suggest using those sites.

Instructions



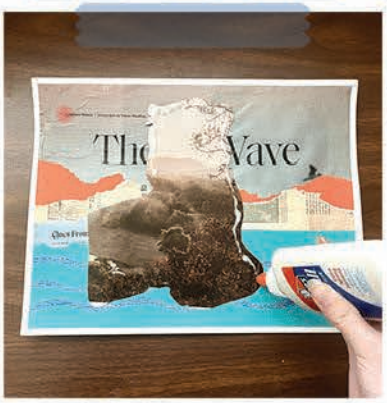
5 Once students have a good collection of images to start with, pass out a sheet of multi-media paper to each of them. Have them draw a 1/4 to 1/2 an inch border on it.



6 Before glueing anything down on the paper, encourage students to plan out and construct their speculative animals. Since collage is a very expressive medium, remind students that it's okay if their designs look a bit weird or odd. Additionally, after constructing a design they feel happy with, it would be best for students to glue their animal together.



7 After that, students can start planning the rest of their collage , gathering whatever extra images and paper materials they can find. Students can also include extra information about their new species in the background. For instance, in my collage, I added more close ups of my animal, as well as depicted their habitat.

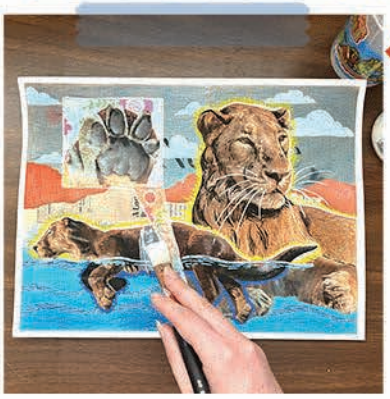


8 When students have finished planning everything out, they can start glueing their collage down. Let the glue dry for a bit once done. Also, consider placing a heavy book on top of the piece, as the wet glue can make the paper buckle.

Instructions



9 After the glue has dried, students can use a variety of art materials such as paint pens, colored pencils, etc, to add important details or make certain elements of their collage stand out. While this is not a necessary step, I found that incorporating a few last finishing touches really helped to unify my collage more and make it really stand out.



10 Lastly, to seal and protect their collages, students can brush on a thin coat of mod podge if desired.



11 At this point, your students should have a fully finished collage, showing a speculative evolution of one of Earth's organisms! Along with this, you can decide to have students write a paragraph or two about their animal explaining some of the research they did, and what adaptations evolution might give them.

Art History

Artists play an instrumental role in cap - turing and educating others about evolutionary processes. For instance, paleo - artists help illustrate what long extinct organisms looked like from their fossilized remains, providing a visual reference for how evolution has changed them into the organisms of today.

Furthermore, instead of depicting the past, some artists combine their skills and scie- ntific knowledge to depict a potential future. Speculative evolution is an artistic genre in which writers and artists create in - depth biologies or evolutionary histories for fictional organisms. While speculative evolution is in the realm of fantasy, it takes into account the real biologies and behaviors of Earth's organisms and ecosystems, which can help scientists predict future trends. In some cases, the speculative animals created by these artists have predicted some fossil discoveries. Most of the creatives that work in this genre are writers and concept artists; sometimes both with the case of Wayne Barlowe and his 1991 book *Expedition*. In having students illustrate the speculative evolution of an organism, they can become more invested in the evolutionary processes that shaped us and every other species here.



Mock taxidermy of a *Rhinograde*, a fictional order of mammals created by Gerolf Steiner, at the Museum Wiesbaden



Expedition cover, Wayne Barlowe, 1991