

STEAM Subject: Ecology

Lab: Lizard Camouflage

Grades: 2-5

Learning objective:

Students will be able to:

- explore how camouflage offers animals a special advantage when it comes to hiding
- demonstrate camouflage in an interactive activity that can be played with family and friends

ENGAGE:

- Students of all ages are familiar with the game hide and seek. Ask your student to describe what they do when it's their turn to hide.
 - They might say that first they look for a good place to hide, then they stay quiet and remain motionless while the person that is “seeking” goes around looking for them.
- We see animals in the wild do the same thing. They stay still, hiding in bushes or tall grass. Given that wild animals are not playing hide and seek, why might they hide?
 - Prey animals need to hide from predators, and predators often hide to catch prey.
 - One trait that allows animals to hide particularly well is camouflage. Camouflage is a tactic that animals use to disguise their appearance, usually to blend in with their surroundings.

Organisms use camouflage to mask their location, identity, and movement. The praying mantis is one of nature’s masters of camouflage. There are thousands of different species that have unique forms of camouflage. Check out this leaf mantis (*Choeradodis* sp.) from Costa Rica, that looks almost identical to an actual leaf. They even sway back and forth to mimic a leaf swaying in the wind.

Image credit:

<https://en.wikipedia.org/wiki/Choeradodis>



It isn't just bugs that can blend into their surroundings perfectly though. Larger animals often rely on camouflage too. Can you find the animal camouflaged in this picture?



Image credit: http://www.storytrender.com/wp-content/uploads/2018/04/7_CATERS_HIDDEN_ANIMALS_08-1024x653.jpg

Answer: Leopard (Located just to the right of the large tree trunk)
The leopard blends in very well with the African savanna. This helps it capture unsuspecting prey.

EXPLORE:

Lizard Camouflage Activity

In this activity, students will be playing a camouflage simulation game called Lizard Camouflage. It is best to have at least two people participating in this activity. Parents, siblings, friends, and other family members are encouraged to participate! You will decorate lizards in order to give them the ability to camouflage somewhere in the house. Then you will take turns hiding and seeking the lizards.

Materials:

- Lizard Templates
- Tape
- Scissors
- Markers, crayons, color pencils, or other materials to color with

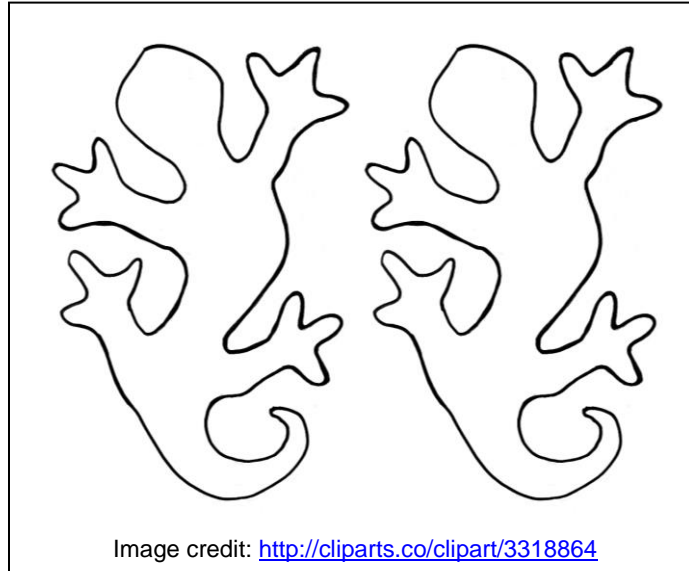


Picture taken by EIS Biology Instructor
Jared DiPrima

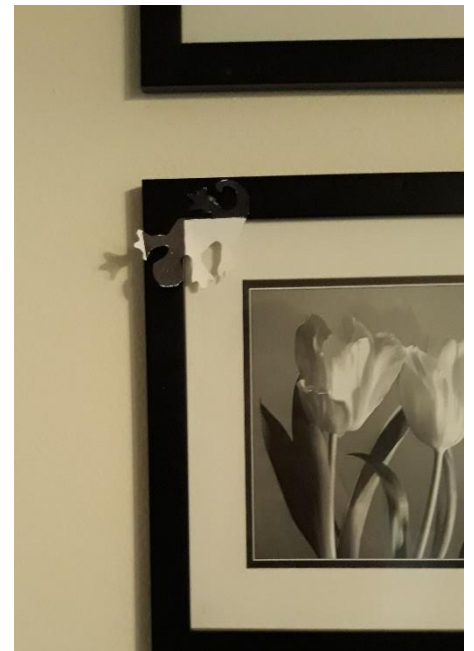
Procedure:

1. Print out the Lizard Templates, one page (two lizards) for every person participating:

https://docs.google.com/document/d/1lqbBngthmwADmwNZzRz_Jdiis2lqOO_rf9gXSZP-i8g/edit?usp=sharing



2. Decorate the first lizard so that it blends in somewhere in your house. Keep in mind of the colors and textures where you will be hiding it. Make sure not to tell each other where you plan on hiding them.
3. Color the second lizard with bold colors, so that it will not blend in well.
4. Once you are done decorating, take turns hiding and seeking the lizards. When hiding them, have the other participant(s) leave the room, and attach your lizards to their spots with tape. Be sure that your lizard is visible, and not hidden underneath or in something (ex: do not hide it under a book placed on a table or inside a drawer). Then, have the seekers come in, and try to find the lizards as fast as they can. You can set a timer you'd like.
5. Last, switch the "hiders" and "seekers" and repeat step 4.
6. Optional Activity: Make this a camouflage game! Color more lizards to blend in and hide them. Keep score of who can find the most lizards.



Picture taken by EIS Biology Instructor
Jared DiPrima

EXPLAIN:

- Which lizards were hardest and easiest to find?
- Who was able to find the lizards fastest?
- Look at more pictures of camouflaged animals. Can you find them all?
 - <https://www.nationalgeographic.org/encyclopedia/camouflage/>
 - <http://www.bbc.com/earth/story/20160812-are-these-the-best-camouflaged-animals>
 - <https://www.catersnews.com/stories/animals/hide-and-seek-impressive-animals-camouflage-themselves-within-their-natural-habitats-and-theyre-almost-impossible-to-spot/>
 - <https://www.businessinsider.com/animals-that-use-camouflage-2013-12>
 - <https://www.americanforests.org/blog/9-animals-that-use-forests-as-camouflage/>
- Review STEAM Vocabulary:
 - **Camouflage:** A tactic that animals use to disguise their appearance, usually to blend in with their surroundings.
 - **Predator:** An animal that hunts other animals for food
 - **Prey:** An animal that is eaten by another animal
- Watch videos about masters of camouflage:
 - Cuttlefish: <https://youtu.be/pgDE2DOICuc>
 - Orchid Mantis: https://youtu.be/0VU_T41x-xA
 - Arctic Fox: https://youtu.be/mSflRbBMu_M
 - Walking Sticks: <https://youtu.be/Nxs0Q7kaKU>
 - Animal Hide and Seek: <https://youtu.be/YOIRci0CKzq>
 - Animal Tricksters: <https://youtu.be/cV0kkFMK2CI>

ELABORATE:

What are some examples of other animals that camouflage? Take a walk around your neighborhood and see if you can find any animals utilizing their ability to camouflage!

Tips for finding camouflaged animals:

- Walk slowly and quietly! Many animals are scared of humans since we're much larger and louder than they are.
- Take pictures of what you see! When you look back at the pictures, try to find the animals again.
- Be respectful and do not disturb the animals! Be sure not to touch the animals or mess up their habitat. Our neighborhood may seem like it only belongs to humans, but it is also the animal's home. You wouldn't want someone walking into your house and disturbing you!
- Look both high and low! Many birds and insects can camouflage high in the trees. Lizards, snakes, and rabbits will most likely be on or near the ground.

- Go out at different times! Some animals are more likely to be out during the morning when the dew is fresh on the plants. Other animals are more likely to be out during the afternoon when the sun is high, and the ground is warm. Some animals prefer to be out when the sun has almost set, so that they can get a head start on their nocturnal lifestyle.

EVALUATE:

Using evidence from the Lizard Camouflage activity, compare what lizards were hardest and easiest to find to explain what lizards will have better camouflage coloration than others and how this adaptation can help them be more likely to survive and therefore more likely to leave offspring.

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