

TaHome Nature Education: Camouflage and Mimicry Grades 3 – 5



Reading: All Kinds of Camouflage

Camouflage is a survival tactic developed by many creatures to disguise or hide their bodies within their specific habitat. It is a method used by predators and prey alike. Usually when we think of camouflage, we think of trying to blend in with our environment using similar colors and textures as the landscape or habitat. This is called **concealing coloration**. Trout swimming in Tahoe's streams have patterns on their bodies that blend in with the rocks and sand of the creek bed. This hiding in plain sight helps them to sneak up and snatch insects landing on the water's surface and to avoid predators like Osprey, Bald Eagles, and fishermen.

Ptarmigan beginning to molt to brown summer plumage



Some Tahoe animals adapt their camouflage based on the season. The brown summer coat of the Short-tailed Weasel and the Long-tailed Weasel blends in well with the soil and undergrowth where they hunt for rodents. In the winter, that same coat would make them stand out to predators against the bright white blanket of snow. Instead, at the end of the fall, their fur turns white (with the exception of a black-tipped tail) to adapt to the changing environment. Similarly, the White-tailed Ptarmigan is a high alpine mountain dwelling grouse whose feathers are brown for much of the year. They are the only type of bird whose feathers turn white in the winter, when their feathery feet act as snowshoes to help them navigate through the deep snow of their winter habitat.

Sometimes animal bodies purposefully stand out rather than blend in. Animals with bold contrasting stripes, spots, or other patterns often are trying to blend in with a large group of similar creatures. This is called **disruptive coloration**. The stripes of Zebras stand out against their grassland home, but a large group of striped animals makes it hard for predators to detect individuals, which can help the whole group stay alive. Disruptive coloration or patterning also can be used simply to break up the profile of the animal against the background environment. This usage can be seen in shorebirds like the Killdeer or in insects like tiger beetles.



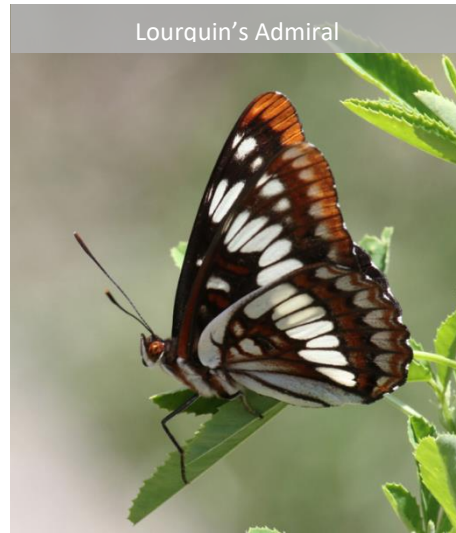
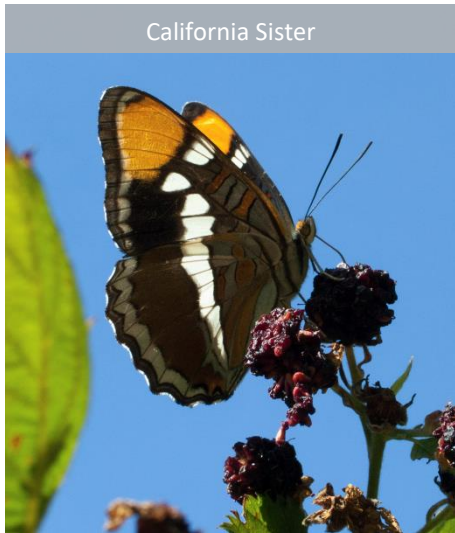
Killdeer



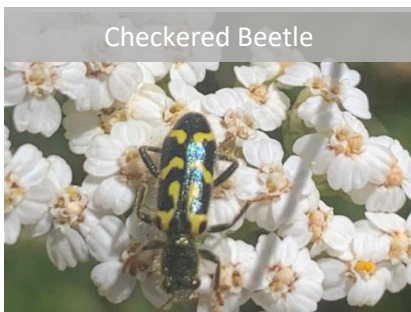
Treehoppers

Other animals use a type of camouflage called **disguise**. In this type of camouflage, animals will appear to look like some object other than an animal. Leaf and Stick Insects are examples of animals that disguise themselves as something completely different from an insect. This goes beyond color camouflage to include elements like shape and size in the disguise. Treehoppers are insects that disguise themselves using a sort of helmet that appears to be a thorn, and are even sometimes called Thorn bugs for their unique camouflage.

When an animal's body doesn't serve as a disguise, they may build themselves a disguise. Caddisfly larvae create cases to disguise themselves and simultaneously provide them shelter and protection from predators. These macroinvertebrates spin sticky silk and use it to create cases with pebbles, leaves, sticks, and other found materials all stuck together around the Caddisfly.



Animals sometimes use camouflage to trick others into thinking they are a more threatening animal. This is called **mimicry** because these animals mimic, or copy, the colors and patterns of more dangerous animals. For example, California Sister butterflies are poisonous to birds and can make them vomit. Lourquin's Admiral butterflies are not poisonous, but they mimic the appearance of California Sisters to trick predators into thinking they are poisonous. This clever trick even fools birds in areas where California Sisters can't be found! Many animals mimic the colors and stripes of wasps or bees to appear more threatening. Checkered Beetles and moths like *Synanthedon bibionipennis* and *Synanthedon polygona* (pictured below), for example, mimic different kinds of wasps.



Some animals may appear not to have any type of camouflage to the human eye. However, many animals have varying abilities to perceive different colors. Fish, reptiles, insects, and birds may see a wider range of colors than humans, such as down into the ultraviolet or up into the infrared. Many mammals like coyotes, bobcats, and deer likely see fewer colors than humans. Much like bees, bears see blues very well, but may not see colors at the red end of the spectrum/rainbow well at all. Animals that are active during the day tend to see more colors than those who come out at night. While humans may not be able to easily appreciate the camouflage or mimicry of certain animals, their concealment counts where it matters, with their predators or prey.

Humans use camouflage as well. Hunters and fishermen dress in camouflage specially made for different kinds of habitats. They do this for the same reasons many other animal predators do, to deceive and catch prey. What other examples of camouflage have you seen?

Activities for Grades 3-5

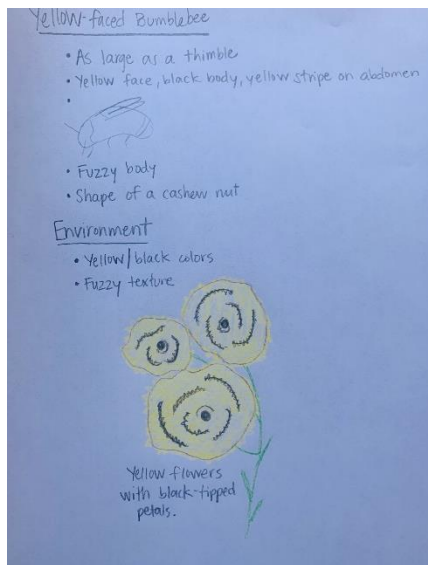
Play Camouflage Tag

Play this game with at least three people. The best spot to play is often in a forest with trees and shrubs to hide behind and open space between trees for traveling easily.

Send the person who is “it” to one end of the playing field. All the other players should start together on the opposite side. When the person who is “it” turns around and closes their eyes, they yell “Camouflage!” and then count aloud to ten. While counting, all other players must try to get closer to the person who is “it”. But, at the end of ten seconds, they must be hidden when “it” opens their eyes and turns around. If “it” can spot someone, that person must go back to the start and try again.



The person who is “it” continues to turn for ten seconds at a time until someone gets close enough and tags them without being seen. Whoever tags them becomes “it” for the next round.



Reverse Camouflage

Animals adapt and evolve to the environments where they live and survive. What if instead the environment adapted to camouflage an animal?

Go on a walk near your home to search for all kinds of wild animals. Bring a notebook and pencil to write down all of the animals you spot and describe their appearance. Look for birds flying, insects on plants, fish in streams, and squirrels in the trees. Take a moment to write the following observations about this animal while in the field:

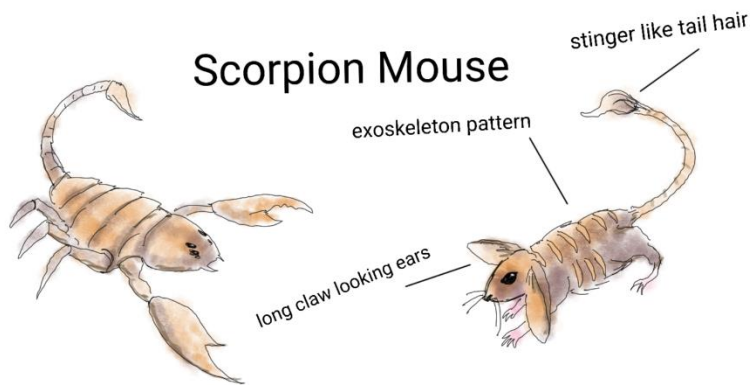
- How large is the animal? What everyday object could I compare the size with?
- What colors are on this animal? Where on the animal's body are each of the colors?
- Draw a rough shape of this animal
- Are there any stand-out features on this animal?
- Does this animal remind you of another animal or object?

After your animal search, sit down and look again at your observations and think back to the animals you watched. Next to the observations of each animal you saw, write down at least **two** elements of an environment that you think would do a good job of hiding this animal. Would they blend in more against rocks or green, leafy plants? Would a strangely colored plant hide them better?

Finally, choose one of your observed animals and create a habitat for that animal that would camouflage them well. Use what art supplies you have to paint, sculpt, draw, or build this habitat.

TINS wants to see your art! Have your parent post a photo of your art project to Facebook and tag Tahoe Institute for Natural Science. You could also email the photo to us at kendal@tinsweb.org.





Invent an Animal

Think of an animal that would be threatening in some way; it could be poisonous, venomous, or a dangerous predator. Invent a new animal that uses mimicry to imitate your chosen threatening animal. Draw both the threatening animal and your new invented animal side by side. As you create your animal, consider these ideas:

- Use similar colors and patterns to the threatening animal
- Invent an animal that is similar in size or shape

to the threatening animal

- If your threatening animal is an insect, will your invented animal be an insect as well? What other kind of animal could mimic your threatening animal?
- What will you name your animal? Will the name include the name of the mimicked threatening animal?

Finally, label your invented animal with all of the features that use mimicry.

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Camouflage Photo

Find an example of camouflage in the wild and take a photo! Some spots you might try searching for camouflaged animals include:

- Underneath rocks in a creek or river (be sure to put them back gently!)
- On top of blooming flowers
- Tree trunks
- Fallen logs
- Shallow ponds

Goldenrod Crab Spiders can change their color to blend in with different flowers.



Share your photos with a friend or family member and teach them what you have learned about the different kinds of camouflage. Challenge them to take a photo of a camouflaged animal and see who can find more!

Words to Know

Camouflage: to hide the presence of an animal by means of blending with some part of their environment

Concealing coloration: the colors of an animal blend with its background, landscape, or environment

Disruptive coloration: a strongly contrasting pattern on an animal that makes them hard to single out

Disguise: when an animal looks like some other object

Mimicry: a non-threatening animal imitates the look of a more dangerous animal



Palabras para conocer

Camuflaje

Ocultando la coloración

Coloración disruptiva

Disfraz

Mimetismo

Further Learning

Learn more about animals' perception of the color spectrum in TINS [Pollinators lesson](#).

[Play](#) these online camouflage games.

Observe the cases of Caddisflies in [this video](#).

[Watch](#) this video to learn more about mimicry.

[Spot](#) the hidden animals in these photos.

[Observe](#) the master of camouflage, the octopus.