

LEVELED Book • T

Camouflage



Written by Kira Freed

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Chameleon

Introduction

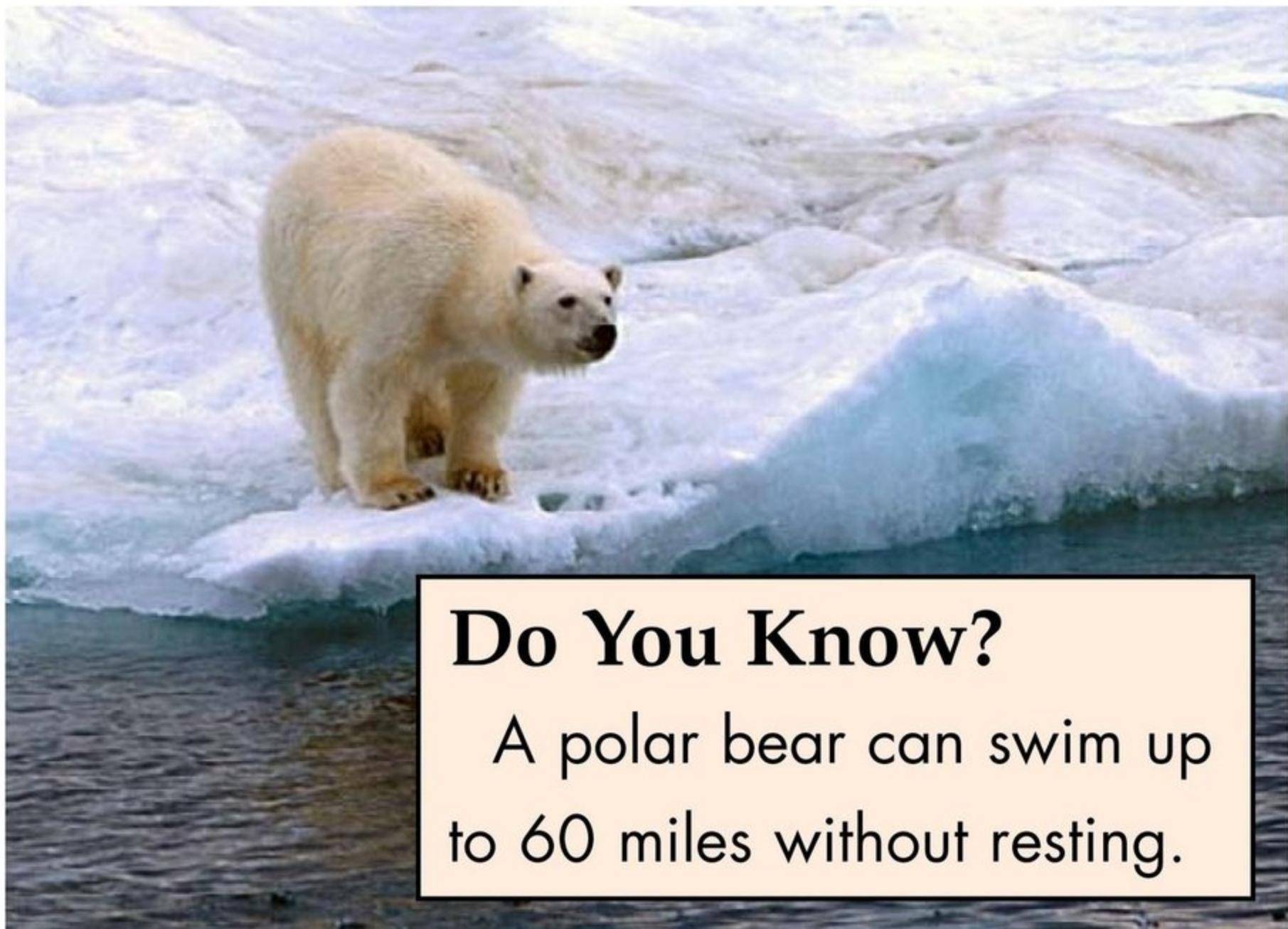
Most animals have enemies. In order to survive, they have to defend themselves. Some animals use speed and strength to survive. Others, like alligators, use their powerful jaws and sharp teeth. Some, like rattlesnakes and black widow spiders, use venom. Others, such as turtles, have hard body coverings. But other animals must rely on the color and pattern of their body covering for survival.

The use of coloring and patterns to **disguise** and **conceal** is called camouflage. Many kinds of animals use camouflage in order to survive. **Predators**—animals that hunt—use it to sneak up on their **prey** without being seen. Prey use it to hide from predators.



The snake's patterns and color can help it hide.

Camouflage comes in many forms. Some animals have permanent color patterns that help them to hide. Others have color patterns that change with the seasons. Still others have color patterns that change with the surface the animal is on. And still others use patterns that change during different stages of life. Let's take a look at different forms of camouflage.



Do You Know?

A polar bear can swim up to 60 miles without resting.

Polar bears blend in with their surroundings.

Blending or Concealing Coloration

Have you heard the joke about the student who turned in a blank sheet of white paper for his art project? His teacher asked him how he could call that art. “It’s not a blank sheet of white paper,” he replied. “It’s a polar bear in a snowstorm.” The polar bear is an example of **blending coloration**—its white fur blends in well with its snowy surroundings. This gives the polar bear an advantage when hunting. It is less visible and can sneak up on seals, walruses, and other animals that it hunts.

Blending coloration is quite common in nature. Many desert creatures, including snakes, lizards, and desert foxes, are the color of sand to match their surroundings. Many insects are green to blend in with the plants they live and feed on. Lions match the color of the dry grasslands of the African plains where they live. Other big cats with color patterns, such as leopards, cheetahs, and tigers, blend in with the light and dark of their woodland homes.



This snake's color blends with the rocks.

A special kind of blending can happen when one kind of animal is found living in many different places. Let's look at earless lizards as an example. Earless lizards living on the white sands of New Mexico are white. Other earless lizards that live nearby on black volcanic rock are almost black. Still other earless lizards in nearby desert areas are light yellow to blend well with sand.



Earless
lizards





Arctic foxes change color for winter and summer.

Seasonal Blending

Many animals have fur or skin that blends in with their environment. But what do you do when the color of your environment changes? Some animals that live in colder climates change color with the seasons. Arctic hares and Arctic foxes in the far north have brown fur in the summer and white fur in the winter. This helps them to hide year round. If the land around them is white, they're white. If it's dark, they're dark, too.

Arctic birds such as ptarmigans (TAR-mi-gans) and snowy owls also change color with the seasons. Ptarmigans start to grow speckled brown summer coats in the spring. The males stay white longer so that they're more visible to predators. While the predators are busy chasing the more visible male, the female hides in her nest and warms her newly laid eggs.



Ptarmigans in summer and winter



Chameleons can change color.

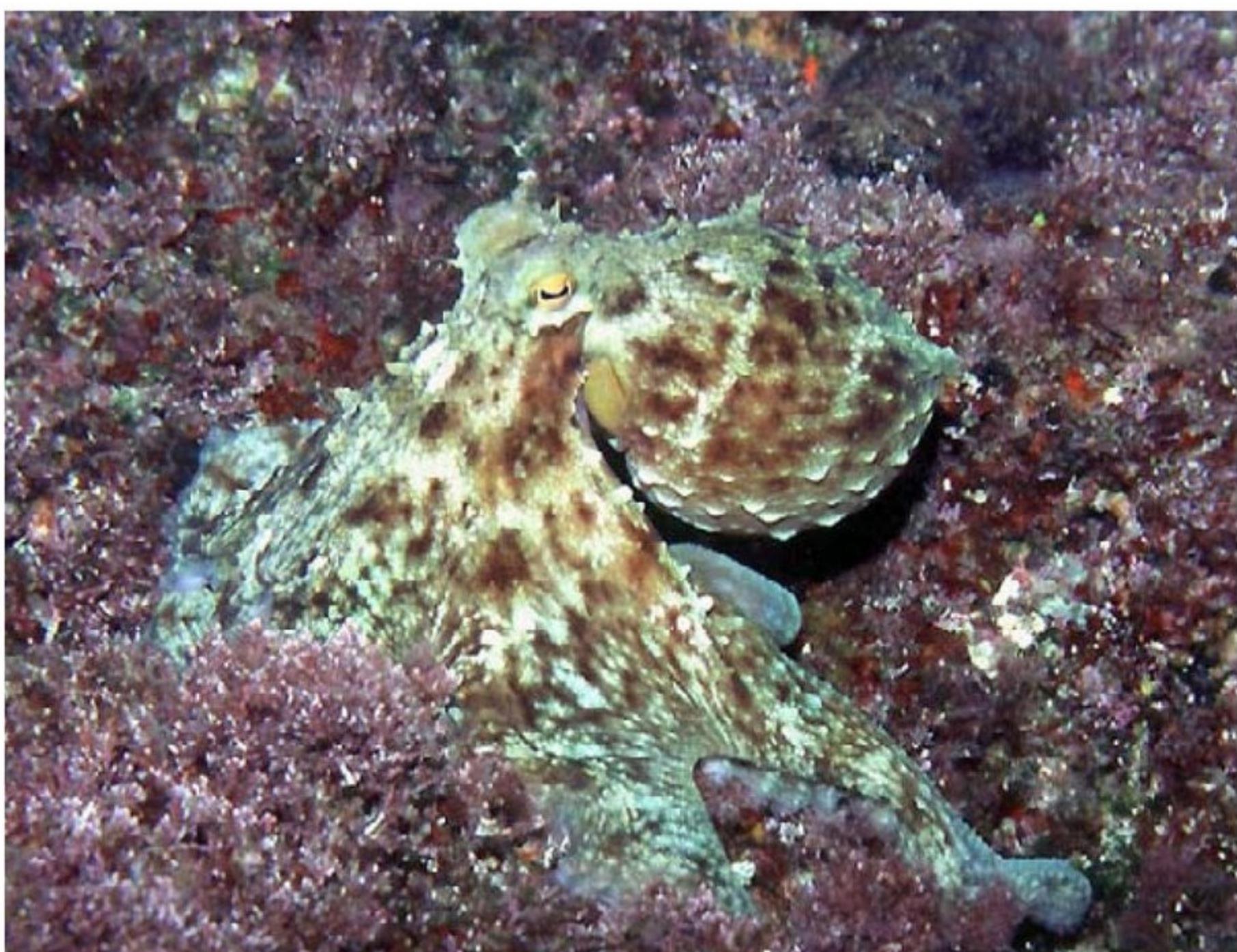
Color Change

Perhaps one of the best-known examples of color change is the chameleon. Many people believe that chameleons change color to hide. But most chameleons change color to display emotions to other chameleons. However, because many chameleons happen to be green, brown, or gray, they are well hidden in nature.

Do You Know?

Chameleons have the widest range of color of all the color-changing animals. They change color when they are hot, cold, frightened, angry, or in love.

The octopus is also known for its ability to change color. It can change both the color and texture of its skin. When an octopus moves onto a rock, it changes color to match the rock. Its skin becomes bumpy to match the rock's surface.



The octopus blends in with its surroundings.

Crab spiders change color, too. They are able to match the color of white, pink, or yellow flowers. They sit on flowers and are almost invisible until an unsuspecting beetle, fly, or bee comes by for a sip of nectar. The crab spider then attacks it.



This white weasel blends in with the snow.

Camouflage in Young Animals

Some animals have camouflage patterns when they are young, but lose these patterns when they grow big and strong enough to outrun their enemies. When young, their parents must leave them alone for periods of time to go find food. If the young are camouflaged, they are less likely to be eaten by a predator while their parents are away.



Young deer have spots to help them blend in with the leaves.

Camouflage patterns are well known in baby deer. Similar light-colored spotting also occurs in the young of tapirs (a hoofed mammal) and wild boars. Topi antelopes of the African desert blend in with the sand while they are young. When they grow strong enough to flee their enemies, they develop black markings. Even some young predatory animals use camouflage to hide. Lion cubs have spots that help them blend in.

Some animals are even camouflaged before birth. Many animals are at risk of being eaten when they are in the egg stage. Birds that nest on the ground are at great risk for having their eggs stolen when they leave the nest. Oystercatcher eggs are the color of pebbles along the beaches where they live. The eggs of other ground-nesting birds have streaks and **blotches** to break up the egg-shaped outline to help them blend with their surroundings.



Speckled eggs blend in well with the rocks.



Many insects look like plant parts.

Disguise

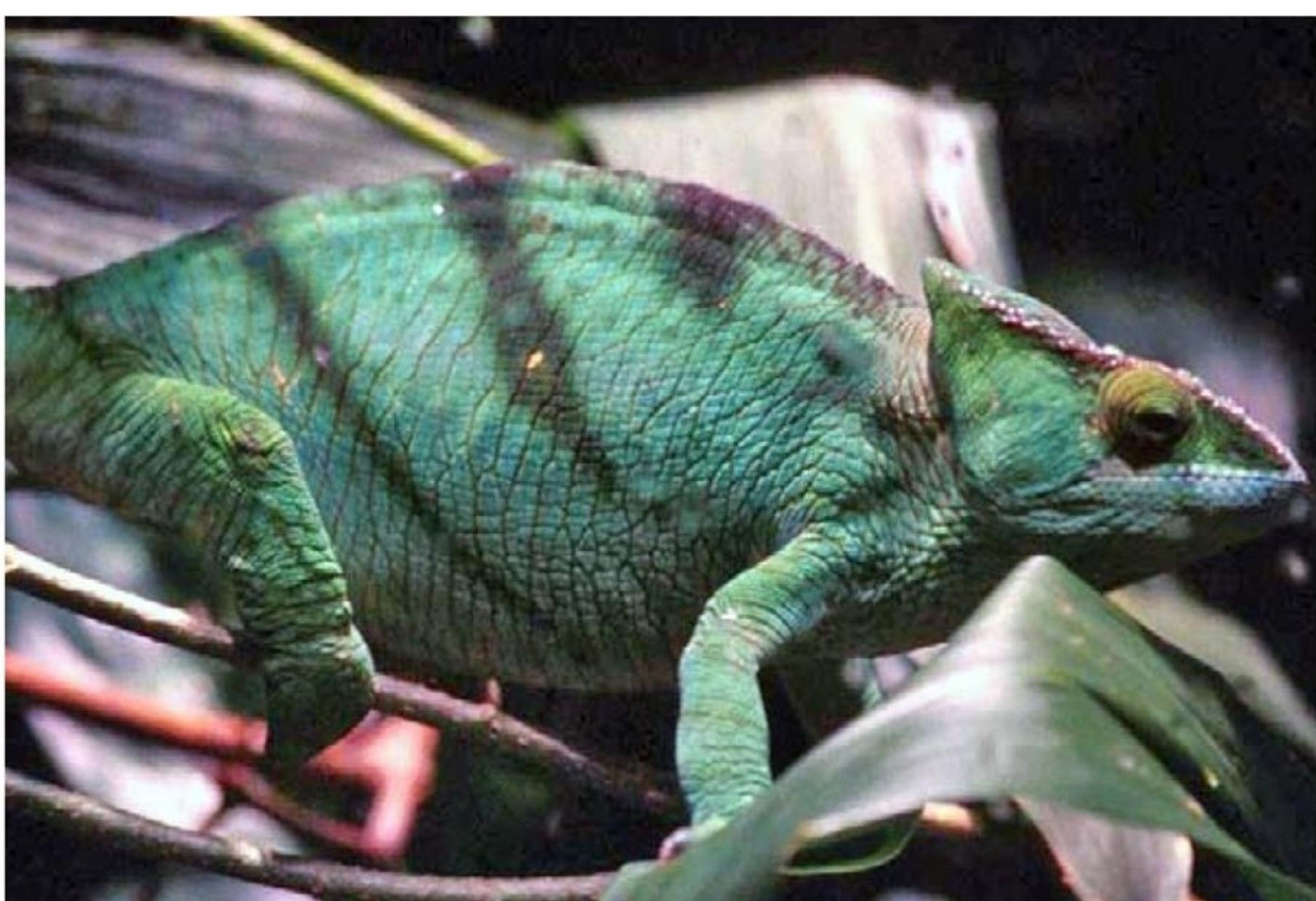
Disguise is another kind of camouflage. A disguised animal looks like another animal or object. Some of the best masters of disguise are leaf insects and stick insects. A leaf insect has wings that look exactly like leaves. Stick insects look so much like sticks that it's almost impossible to tell the insect from the stick that it rests on.

Some insects are the shape and color of flowers. Tropical mantids, of which the praying mantis is one, have bodies that look just like orchids. They are always ready to gobble up an insect that thinks it's about to get a taste of nectar.

Trickery

While disguise involves the visible features of an animal, trickery involves behavior. Some animals try to trick or fool other animals by pretending they are dead or by using some other trick.

When frightened, some chameleons lie on the ground without moving. This behavior causes the chameleon to look like a piece of dead wood. Many kinds of small beetles play dead when they are disturbed. They fall to the ground and look like grains of soil, fooling birds who might otherwise eat them.



Chameleon

Many predator animals will not eat an animal that is already dead. They prefer to eat only fresh meat. So many prey animals play dead to avoid being eaten. When threatened, a hognose snake turns upside-down and throws back its head, holding its mouth open. It pretends to be dead and tricks its predator into leaving it alone.



A hognose snake playing dead



Fireflies use light to attract mates.

Fireflies are experts at a very clever kind of trickery. When a firefly wants to mate, it flashes its light. Each species of firefly flashes its own kind of signal pattern. Sometimes the female of one species will imitate the signal of another species to trick the males of that species. She flashes the signal of the other species, and when a male arrives, she eats him.

Disruptive Coloration

Another kind of camouflage is called **disruptive coloration**. This kind of camouflage helps to break up an animal's outline and hide its true shape. The stripes of tigers and zebras are two examples of this kind of camouflage. Two African antelopes also have stripes that help break up their outlines. The stripes of all these animals blend in with shadows and make the animals less visible.



Zebras have disruptive coloration.



Io moth with eyespots

Flash Coloration and Other Surprises

Until now, we've been talking about how animals use color and behavior patterns to be less visible. But some animals survive by being *more* visible. Some animals escape predators by startling them. Some do it by making a sudden noise or by baring their teeth. Others **startle** by flashing a bright color at the predator. This is called **flash coloration**.

A related kind of camouflage involves **eyespots**. Some moths have spots on their wings that look like the eyes of large animals. When the moth flashes its eyespots, this can startle a predator and give the moth an extra second or two to fly away before being eaten.



Poisonous
frog

Warning Coloration

Other animals have bright coloring to warn other animals that they taste bad or are poisonous. The bright colors remind predators of the bad experience they had the last time they tried to eat one of these yucky animals. Fish, frogs, snakes, and many kinds of insects use **warning coloration**.

A few animals survive simply because they look like some other bad tasting or poisonous animal. They disguise themselves using the same colors, just to keep predators away. Some flies and moths survive because they have black and yellow body stripes like stinging wasps and bees. Some also make a buzzing sound like a bee.

A famous example of warning coloration is the monarch butterfly, which is bright orange and black. Monarchs taste so bad that a bird will often vomit after eating one. But the viceroy doesn't taste bad. However, it has developed similar markings to look like the monarch. It is more likely to be left alone by predators since it looks like the foul-tasting monarch.

Viceroy



Monarch





Camouflaged eggs

How Did Camouflage Develop?

From one generation of living things to the next, little changes happen in physical traits such as colors and patterns. Sometimes when animals have babies, some of the babies are born with slightly different features. The difference may give this new animal an advantage toward survival. For example, it may be faster or have a color or pattern to better blend with its surroundings. With such an advantage, this animal is more likely to survive to produce its own babies. These babies are likely to also have the same trait and will be more likely to survive.

An animal whose camouflage does not work well will be eaten by a predator. Only animals with the best traits survive to produce **offspring**. Those offspring tend to have the same traits as their parents. In this way, the successful camouflage is passed on from one generation to the next.

This process works for predators as well. Predators with the best traits will be the ones that have regular meals, stay strong, and are more likely to survive and reproduce. Their traits then get passed on to their offspring, who in turn are also more likely to survive and reproduce. Over thousands of years, weak and less protected animals failed to survive. This has allowed animals with the best traits for survival to live on and reproduce.



Polar bear



The rhinoceros does not need camouflage.

Conclusion

Only a few animals have no need for camouflage. These animals may have no natural enemies and eat plant food that cannot escape. The only threat to these animals comes from humans. Land animals such as elephants, rhinoceroses, and hippopotamuses do not need to camouflage themselves from natural enemies. In the ocean, only certain huge whales that eat plankton have no need of camouflage. For other animals, camouflage plays an important role in the struggle to stay alive.

TRY THIS!

Wear neutral-colored clothing for a day. Notice how many people pay attention to you as you do normal activities such as going to school or going to a store. On another day, wear bright red clothing and do similar activities. Notice if you get more attention when you wear bright colors.

TRY THIS!

Go out into nature with a family member. Wear clothing that is only shades of green or brown. Stand in the middle of a wooded area and see if your companion can see you from 20 paces away. Now put on a brightly colored T-shirt you've brought with you. Stand the same distance away and see if your companion sees you.

Glossary

blending coloration (<i>n.</i>)	camouflage that helps an animal blend in with its background (p. 6)
blotches (<i>n.</i>)	dark patches or stains (p. 15)
conceal (<i>v.</i>)	to hide (p. 5)
disguise (<i>v.</i>)	to pretend to be something different by changing appearances (p. 5)
disruptive coloration (<i>n.</i>)	chunky patterns such as blotches or spots that help break up the outline of an animal (p. 20)
eyespots (<i>n.</i>)	spots that look like the eyes of a much larger animal (p. 21)
flash coloration (<i>n.</i>)	sudden, startling color that helps an animal escape (p. 21)
offspring (<i>n.</i>)	descendants (p. 25)
predators (<i>n.</i>)	animals that hunt and prey on (eat) other animals (p. 5)
prey (<i>n.</i>)	an animal that is eaten by another animal (p. 5)
startle (<i>v.</i>)	to suddenly scare (p. 21)
warning coloration (<i>n.</i>)	colors that tell other animals that an animal tastes bad or is poisonous (p. 22)

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