

Amazon Voyage

Hide-and-Seek

Background Information

Have you ever played hide-and-seek? Animals that live in the Amazon River play hide-and-seek all the time. In their case, the winner lives to play another day and the loser goes hungry or becomes dead meat. Scientists classify hide-and-seek players into two different categories. They are either **prey** or **predators**. The two groups have different reasons to conceal themselves. Prey animals are the animals that are hunted for food, and need to hide from predators. Predators, the hunters, hide so that they can sneak up on prey animals. A color or pattern that helps an animal to hide is called **camouflage**. You can find many species of **freshwater stingrays** well camouflaged in the Amazon River. In fact, of the sixteen known species of Amazon freshwater stingrays, more than 50 varieties of color patterns are observed. Each stingray has different colors and patterns that help it blend in with its habitat, which could be sand, gravel, mud or leaves of various colors. This does not necessarily mean that black stingrays live only in the black waters of the Rio Negro, dotted rays live only in pebble-bottomed rivers, and so forth; it simply means that the markings help them to camouflage and give them a greater chance of survival and reproduction.



There are different types of camouflage

Animals with **cryptic coloration** have patterned or colored body coverings that help them blend in with their natural environment. This is a type of **adaptation** that allows an animal to successfully hide from a predator or sneak up on prey. The specific form of color or pattern that cryptic coloration takes depends on an animal's surroundings. A fish that lives on sandy river bottoms may be light brown, while another fish that lives

among underwater grasses may have vertical bars of green and brown. Some fish even have skin textures that match the texture of their environments.

Countershading is a specific pattern that serves to hide animals that live in water. Countershaded animals like mantas, dolphins, and many sharks have light-colored bellies and dark backs.



Red-bellied Piranha

The light-colored belly blends in with the bright surface of the water when seen from below. When seen from above, a dark back blends in with the darker color of the riverbed or ocean bottom. Many fish of the Rio Negro have a red belly, like the red-bellied piranha. Some scientists believe that this is an example of countershading. The black waters of the Rio Negro diffuse into red towards the surface; hence, if a predator looks at a fish from below, its red belly would blend with the red surface of the river.



Cardinal Tetra

Another type of camouflage is **disruptive coloration**, where an animal may have bold stripes, spots, or blotches. Disruptive coloration confuses the eye. It breaks up the solid outline of an animal's body so that it is harder to see it and recognize it. In some cases, boldly patterned animals disappear against the mottled patterns and shadows of their environment. Both predators and prey can employ disruptive coloration. A tiger's stripes illustrate disruptive coloration. Prey animals such as deer and wild pigs find it hard to identify the outline of a tiger, as its stripes break up its shape when it moves through forest or tall grasslands. Herding or schooling animals may have bold patterns as well. When a school of brightly colored fish, like the cardinal tetras, congregates together, it's hard

to tell where one tetra begins and another tetra ends. This makes it tricky for a predator to attack because it can't single out any one fish.



Amazon leaf-fish

Some animals use **disguise** to help them survive in the wild. The twig catfish looks so much like a stick that it fools predators into thinking it's part of the piles of leaves and sticks that accumulate in the bottom of streams. The Amazon leaf fish is another example of this kind of camouflage. It looks so much like a leaf that it goes virtually unnoticed by predators.

Oscar



Another illusion frequently employed by prey animals is called an **eyespot**. This is a large, realistic-looking eye-shaped mark found on a fish's tail. A predator that is fooled by the eyespot may attack the wrong end of the fish, or it may expect the fish to flee an attack in one direction when it really will swim the other way.

Amazon Voyage Hide-and-Seek Directions

1. Read the background information that is provided as a group.
2. Use the pictures that are provided to identify different types of camouflage.
3. Now pretend that the lab will become the bottom of the Amazon River.
4. Get one stingray template from the basket for each person in your group.
5. Look around the room and determine a place where the stingray will hide. You may use cryptic or disruptive coloration to hide your fish.
6. Decorate the stingray.
7. Cut out your stingray.
8. After you decorate have other group members guess which type of camouflage you used.

As a group discuss the following questions about camouflage:

- a. Why do animals hide?
- b. How do animals hide?
- c. How do color patterns help animals hide from their predators?
- d. How do color patterns help animals hide from their prey?

After answering the questions hang your stingrays in the appropriate place in the lab.

**Place all materials back in the basket
for the next group/class.**

Amazon Voyage Hide-and-Seek Directions

1. Using the background information provided with your partner look up the following words. Write the word and a definition for the word in your folder.

prey
predator
camouflage
cryptic coloration
countershading
disruptive coloration
eyespot

2. Now pretend that the lab will become the bottom of the Amazon River.
3. Get one stingray template from the basket.
4. Look around the room and determine a place where the stingray will hide.
5. Decorate the stingray.
6. Cut out your stingray.
7. Write your name and teacher's name on the back of the stingray.

After decorating your stingray with your partner discuss the following questions about camouflage:

- a. Why do animals hide?
- b. How do animals hide?
- c. How do color patterns help animals hide from their predators?
- d. How do color patterns help animals hide from their prey?

**Place all materials back in the basket
for the next group/class.**