SCIENCE·3D

SHARKS!

In this packet, sample student answers are provided in red and notes to teachers are in blue.

Using the **Explore Your Backyard** activity, students will compare and contrast body systems and traits of sharks to organisms in their local environment.

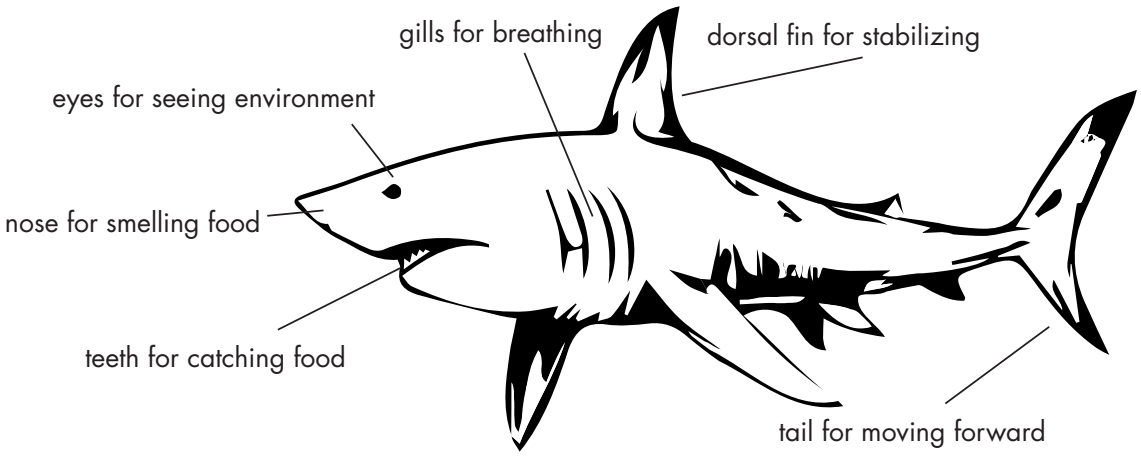
It takes incredible body systems to be able to migrate thousands of kilometers! That is just what blacktip sharks can do. Other animals have amazing migrations too. Arctic terns migrate back and forth between the Arctic and Antarctic every year. The round trip is 30,000 km (19,000 mi)! But these aren't the only animals that make huge migrations and have amazing body systems. Every animal is adapted to its environment. Let's compare and contrast different types of organisms!

Activity 1: Look Outside

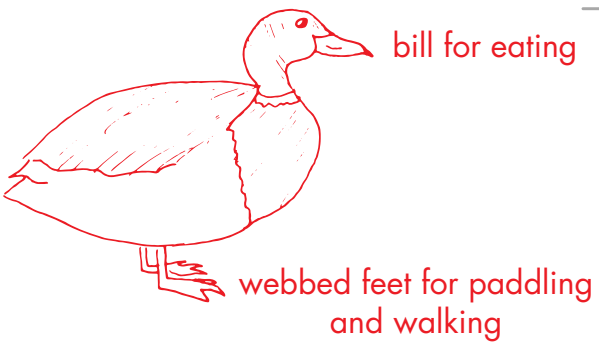
Ideally, the first part of the activity would be completed outside the school on a field trip or on school grounds, with students taking notes as they observe the habitat. A "virtual" field trip could also be taken through independent online investigations, explorations of the Science 3D 360 experiences, or books. This assignment (or the first step) could also be given as homework.

One of the most important scientific skills is observation. Most scientists are very curious, and they like to observe the systems or organisms they study in great detail. For your assigned location or ecosystem, use the space and tables on the following pages to record your observations.

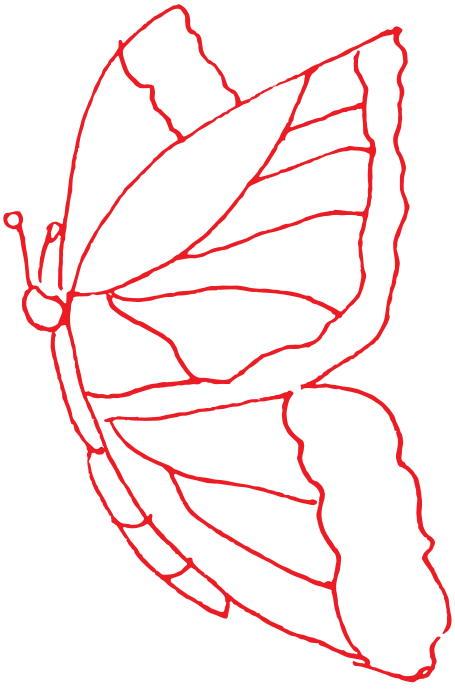
Select three different organisms that you observe or encounter during your research. Make a drawing of the organism. Label its external structures. **Describe** their function (for example, moving, eating). Below is an example for a shark!



1. Organism 1: mallard duck



2. Organism 2: butterfly



3. Organism 3: squirrel

Activity 2: Look Inside

Have students pick one or two animals that they observed or are interested in and complete the activity below. You may want to encourage students to select different types of organisms (for example, one mammal, one bird, one reptile, etc.) to facilitate sharing in Activity 3.

Once you have made some observations, you need to do more background research. Use the **Mission Reader**, other books, appropriate online resources, or other methods.

From the list you made in Activity 1, choose one or two animals and complete the questions.

1. **Write** the name of the animal that you chose to learn more about in the first blank below. Then **write** whether it is a **mammal, bird, reptile, amphibian, fish** or **invertebrate**.

   I chose to investigate _____mallard duck_____. It is a _____bird_____ .

2. **Describe** the characteristics of the organism. Consider how you decided what kind of organism it is.

   Here are some sample characteristics:

   Feathers. Feathers are the defining characteristic of birds, found on every living species of bird and no other class of animal.

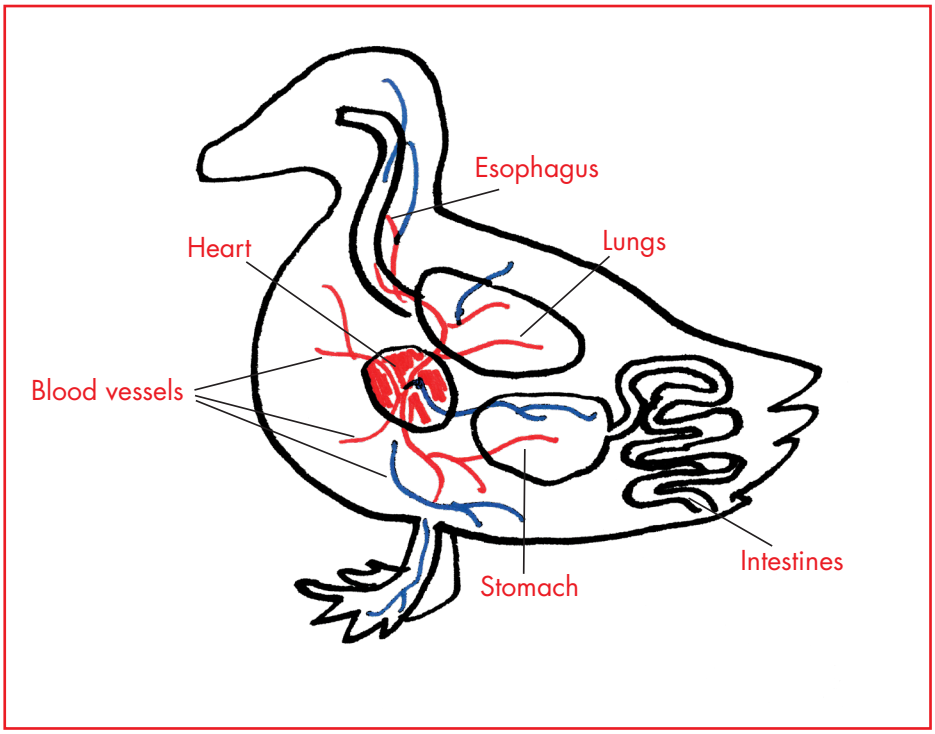
   Wings. All birds have wings, although not all birds fly.

   Beak. All birds have beaks, or bills, made of a bony core surrounded by a thin layer of keratin.

   Lays eggs.

   Lightweight skeleton, most with hollow bones.

3. Use books or online resources to learn about the organism's internal structures. **Draw** a diagram of the inside of your organism. Label the **heart, blood vessels, lungs** or **gills, esophagus, stomach, intestine**.



4. Fill out the table below for the organism.

How does it move?	What structure does it use to get oxygen?	What is its external covering made of?	How many chambers are in the heart?
Flies with its wings	Lungs	Feathers	4 chambers

If you chose another animal to investigate, complete those answers here.

1. **Write** down the name of the animal that you chose to learn more about in the first blank below. Then **write** whether it is a **mammal, bird, reptile, amphibian, fish** or **invertebrate**.

   I chose to investigate _____. It is a _____ .

2. **Describe** the characteristics of the organism. Consider how you decided what kind of organism it is.

3. Use books or online resources to learn about the organism's internal structures. **Draw** a diagram of the inside of your organism. Label the **heart, blood vessels, lungs** or **gills, esophagus, stomach, intestine**.

4. Fill out the table below for the organism.

How does it move?	What structure does it use to get oxygen?	What is its external covering made of?	How many chambers are in the heart?

Activity 3: Compare and Contrast

Encourage students to share their work from the previous activities, either as posters or presentations. Remind students to be active listeners during presentations, so they can use what they learn to fill in the table below.

1. **Design** a poster or presentation of one of the animals you studied. It should include a view of its external and internal structures (like your drawings in Activity 1 and Activity 2). Write the function of each structure.

2. Use information that you learn from other posters or presentations to fill in the table below.

	How does it move?	What structure does it use to get oxygen?	What is its external covering made of?	How many chambers are in the heat?
Fish				
Amphibian				
Reptile				
Bird				
Mammal				
Invertebrate				

Extend the lesson: Have students select two animals and have them compare and contrast their external and internal structures and functions.