



Nature Detective

Introduction

In the book *Pitter and Patter*, two drops of rain (*Pitter* and *Patter*) fall from a gray cloud and travel through the water cycle. Along the way they meet many different “characters” in a variety of habitats. In this activity, students learn more about each character, are introduced to new vocabulary terms, and become “nature detectives” drawing and/or writing about other critters in the habitat.

Materials Needed

- ◆ A copy of the book *Pitter and Patter*
- ◆ “Meet the Characters and Their Homes” handout, included in this pdf

Common Core Standards (ELA K-3)

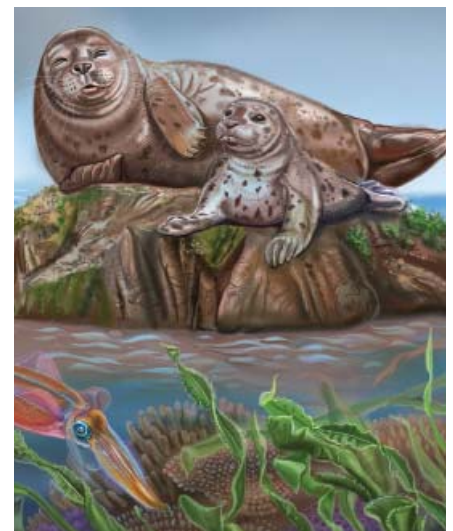
- ◆ Reading: Informational Text
 - Key Ideas and Details (K.1, 1.1, 2.1, 3.1)
 - Integration and Knowledge of Ideas (K.7, 1.7, 2.7, 3.7)
- ◆ Writing
 - Text Types and Purposes (K.3, 1.3, 2.3, 3.3)

Procedure

1. Read aloud the story about *Pitter* and *Patter*.
2. Referring to the two pages titled “Explore More—For Kids,” follow *Pitter* and *Patter* through the water cycle beginning and ending with the gray cloud. Pay specific attention to the characters they meet along the way.
3. Using the handout, introduce habitats presented in the story (oak tree, stream, valley, wetland, meadow, soil, cave, river, ocean) and have students take turns reading about the characters.
4. Review the vocabulary terms, adding more explanation as needed.
5. Have students complete the “Nature Detective” section for each habitat. There are several options for how you can have them do this: students may work individually or in small groups, with each person/group doing one habitat. Or, you may cover one or two habitats a day. For older students, you may want to assign “Nature Detective” for homework.
6. No matter which format you choose, have students share their completed writing/illustrations with the

Next Generation Science Standards (DCI K-3)

- ◆ PS1: Matter and Interactions
 - A: Structure and Properties of Matter,
 - B: Chemical Reactions
- ◆ ESS2: Earth’s Systems
 - C: The Roles of Water in the Earth’s Surface Processes
- ◆ LS1: From Molecules to Organisms: Structures and Processes
 - A: Structure and Function
 - C: Organization for Matter and Energy Flow in Organisms
 - D: Information Processing
- ◆ LS2: Interactions, Energy, and Dynamics
 - A: Interdependent Relationships in Ecosystems



Pitter and Patter

Meet the Characters and their Homes



Oak Tree

I am friend to many creatures. Birds, squirrels, bats, owls, moss, ferns, spiders, and many insects find food and shelter within my enormous trunk and branches. Many other creatures visit me to collect my acorns including deer, rabbits, raccoons, opossums, foxes, turkeys and ducks. I can live for hundreds of years.



Squirrel

I am a bushy-tailed **rodent**. My tail helps me to keep my balance while I race through the tree tops. I also use my tail to communicate and will wrap it around me if I'm cold. I live in the woodlands in a large round nest made of sticks and leaves called a drey. I am an excellent tree climber and very fast runner. I like to eat seeds, nuts, mushrooms and fruit.



Blue Jay

I am often seen at bird feeders and easily recognized thanks to my brilliant blue, white, and black **plumage**. I can collect 2-3 acorns at a time in a pouch at the back of my mouth. I store these acorns away underground for winter. Some of these sprout and grow into new oak trees. Many of the oak trees that have grown since the last ice age are thanks to blue jays such as me.



Caterpillar

I am green so that I blend in with the oak leaves that I love to eat. Many birds would like to eat me for lunch so my **camouflage** protects me. I am hungry all the time but soon I will form a cocoon and take a rest. When I emerge, I will be a tan moth with two beautiful silver spots on each of my front wings.



Nature Detective

What other organisms can be found in an oak tree? Use the blank above to sketch and describe one other creature that lives in the mighty oak.

List and define each of the underlined words in the space below.



Stream

I am a mountain stream. I am steep, rocky and narrow. I carry melted snow and cool mountain rains down to the river below. Trees grow on my banks and their branches stretch over me, so I am often in the shade. With so many trees nearby, I have lots of leaves in my water. The insect larvae living in my water love these leaves. Some hide in them, others cut them up into tiny pieces to eat.



Frog

I'm not your average pond frog. I am adapted for life in a cool, fast-moving, mountain stream. My skin is tan, brown, and olive green to blend in with the stream bottom. I have special toes with hard ends that make it easier to crawl on the rocks that line the stream. I am also quite small. As a tadpole, my mouth worked like a suction cup, attaching to rocks so that I would not get swept away.



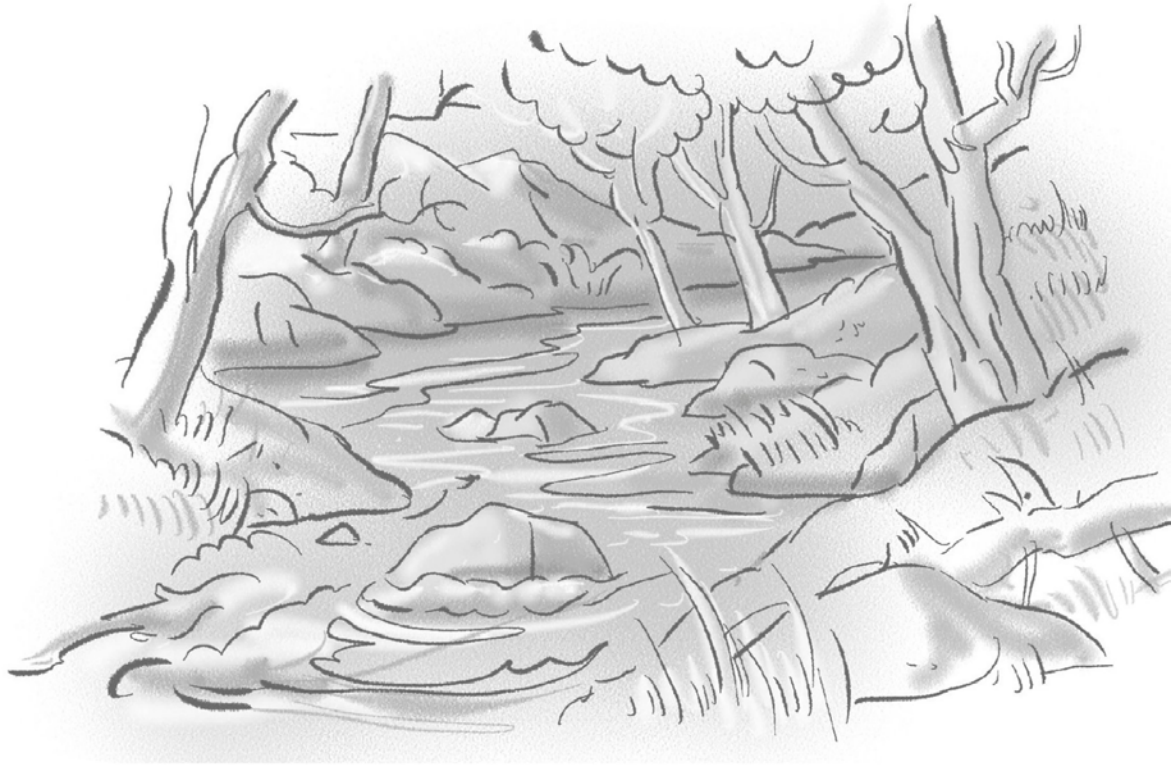
Snake

I am an excellent swimmer and often hunt at the water's edge with my mouth open wide. Most of my diet consists of earthworms and amphibians. I'm cold blooded so have to spend my winters hibernating in the bank of the stream.



Mayfly

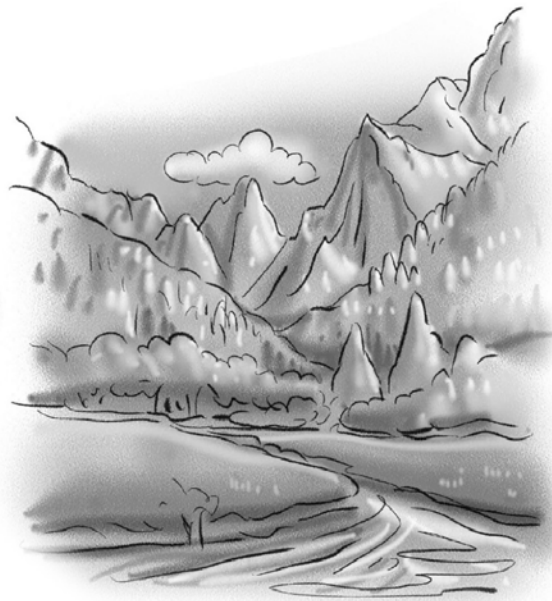
I have not grown my wings yet. I'm still just a nymph. I graze on the vegetation in the stream. I cannot live in polluted water so my presence in a stream means that it is clean and healthy. When the hawthorn blooms, I will emerge to see the world outside the stream for just a day or so. It's a race to lay my eggs in the stream before a trout gobbles me up!



Nature Detective

What other organisms can be found in a stream? Use the blank above to sketch and describe one other creature that lives in or near a stream.

List and define each of the underlined words in the space below.



Valley

I am the u-shaped lowland that lies between the mountains. I was carved out of the mountains years and years ago by a mighty glacier. All the rain that falls on the mountains flows down towards me. The streams that come together on my slopes empty into the river below.



Fox

I am known for my intelligence and cunning. I am mostly a **carnivore** but I will eat berries in autumn. Like the squirrel, I use my thick tail for balance and communication. My den often smells like rotting meat. I am not a very good housekeeper!



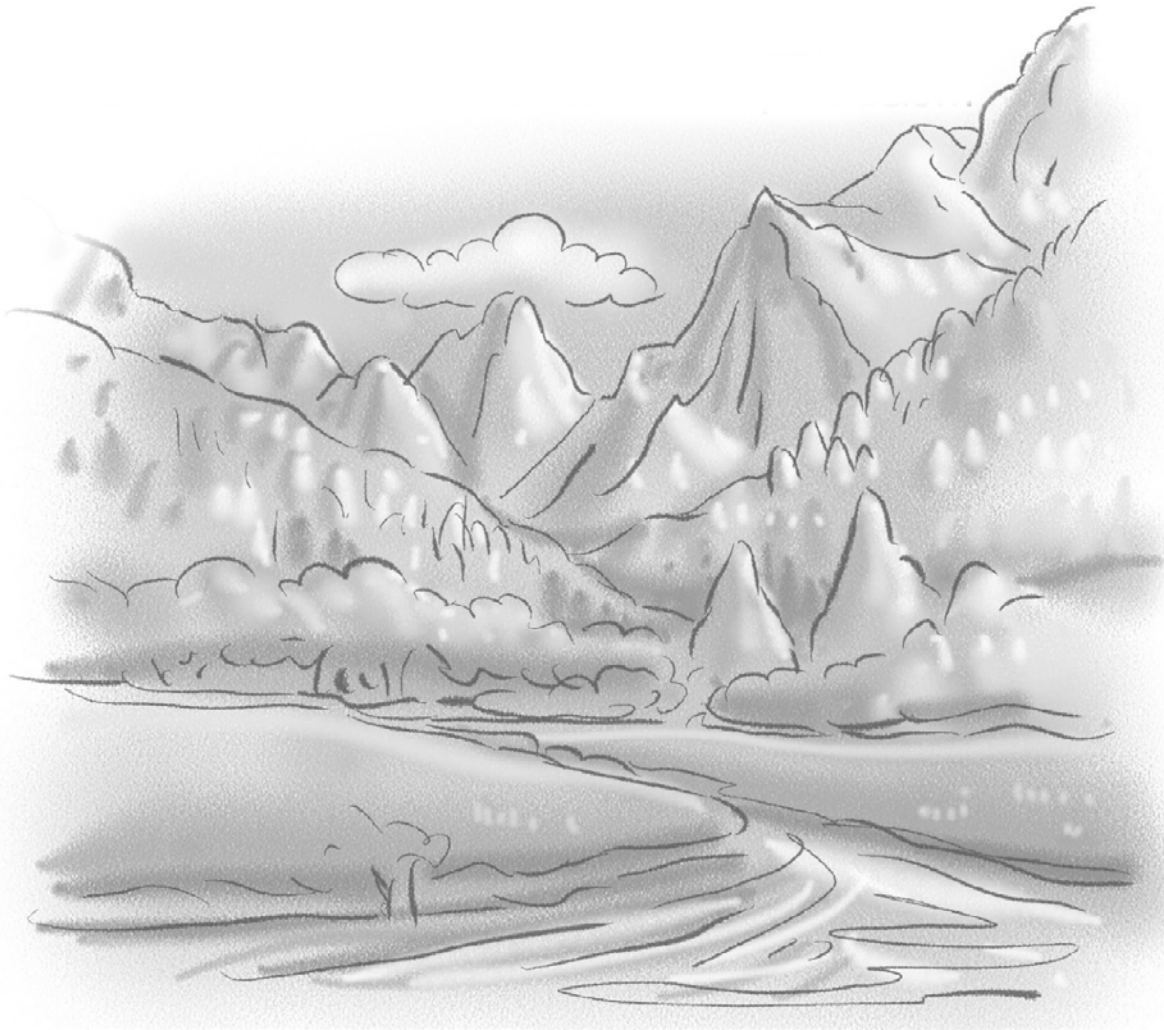
Deer

I am a buck. I grow new antlers each year that help me to fight the other bucks. This impresses the does. When my antlers emerge each spring, they are covered with velvet. I rub this velvet off on the bark of small trees to mark my territory. Being an **herbivore**, I am fond of grass, leaves, stems, shoots, berries, acorns, mushrooms, and even a farmer's crops!



Hawk

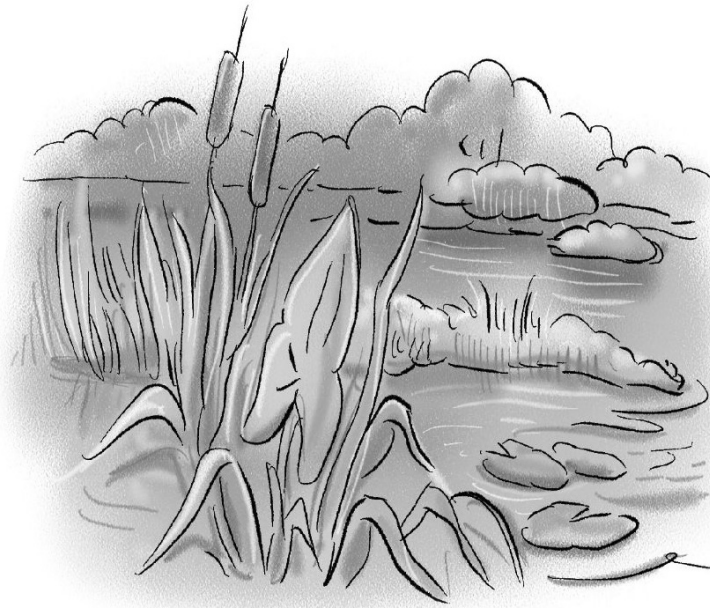
I am a **raptor**. I hunt from a perch and drop down on my prey. I have broad wings and a wide tail to help me soar and keen eyesight to help me spot my prey. If you look closely, you will see the black and white bars on my tail and on the edges of my wings. My scream, *kee-rah*, is a familiar sound in the forest.



Nature Detective

What other organisms can be found in a valley? Use the blank above to sketch and describe one other creature that lives in or passes through a valley.

List and define each of the underlined words in the space below.



Wetland

I am where the salt water of the ocean and the fresh water of the river meet on swampy ground. The plants that I grow are able to thrive in flood-like conditions. I am very important! I filter the water, prevent floods, and serve as breeding grounds and nurseries for fish, shellfish and birds.



Crab

My name in Latin means “beautiful savory swimmer.” My two front legs are claws that are strong enough to open the clams and other bivalves that I like to eat. My back two legs are paddles that help me to swim. I have a hard **exoskeleton** that I must shed when I grow too big for it. I can’t defend myself until a new, larger one grows back so have to hide in the wetland grasses until I’m tough again.



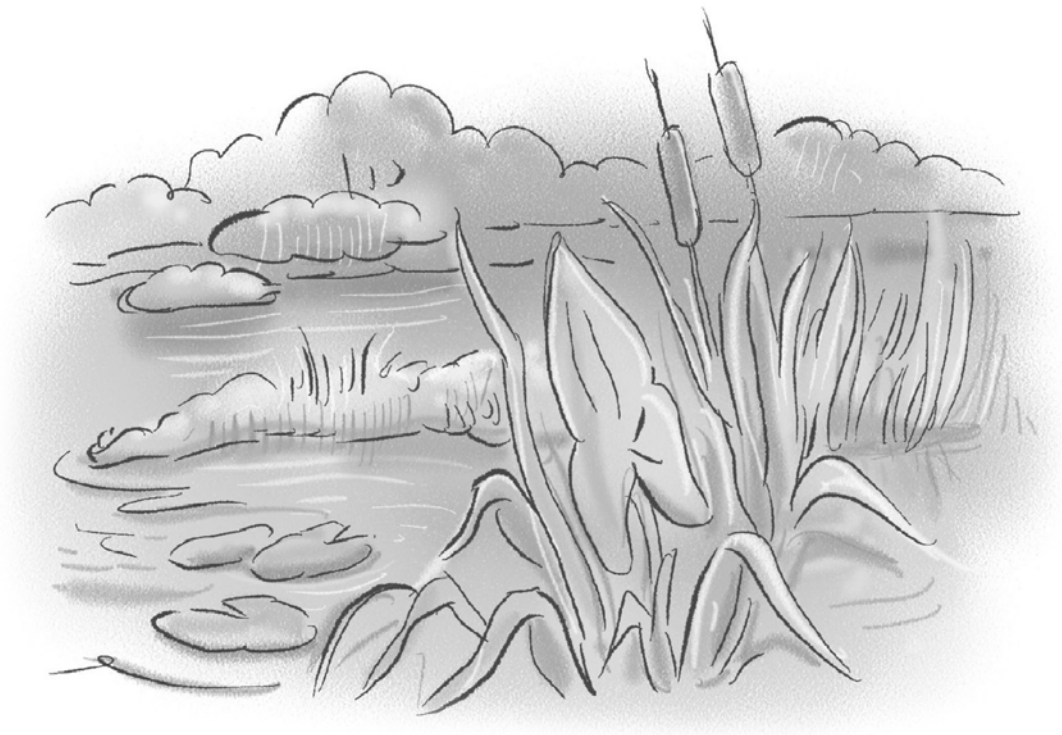
Shrimp

I am a juvenile shrimp. I am growing bigger and stronger here in the wetlands. I can easily hide in the grasses and there is plenty to eat. I eat **detritus**, worms, snails, tender roots, and other treats on the **estuary** floor. Soon I will become an adult and return to the sea.



Heron

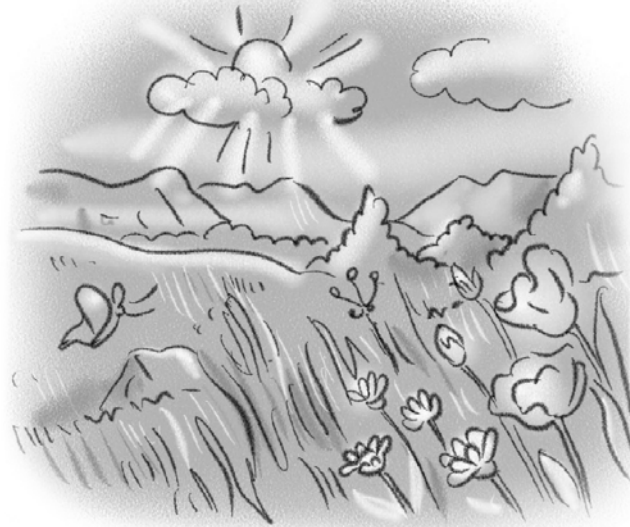
I stand motionless in shallow water and wait for an unsuspecting fish, frog, snake, duckling or insect to grab with my long sharp beak. I am 4 feet tall thanks to my long, slender legs and neck. I spend most of my time alone except during the breeding season in spring. I may live to 15 years old!



Nature Detective

What other organisms can be found in the wetlands? Use the blank above to sketch and describe one other creature that lives in the darkness of a cave.

List and define each of the underlined words in the space below.



Meadow

I am a 'sea' of waving flowers and grasses basking in the sun. I support lots of insects and insect-eating creatures. I am never plowed so my flowers reseed naturally. I welcome the sheep and deer since their grazing keeps the bramble away.



Daisy

I am actually lots of flowers in one. Look closely and you'll see that many tiny orange flowers make up my center with large white petals circling around them. My petals are full of vitamin C and are safe and delicious to eat in salads.



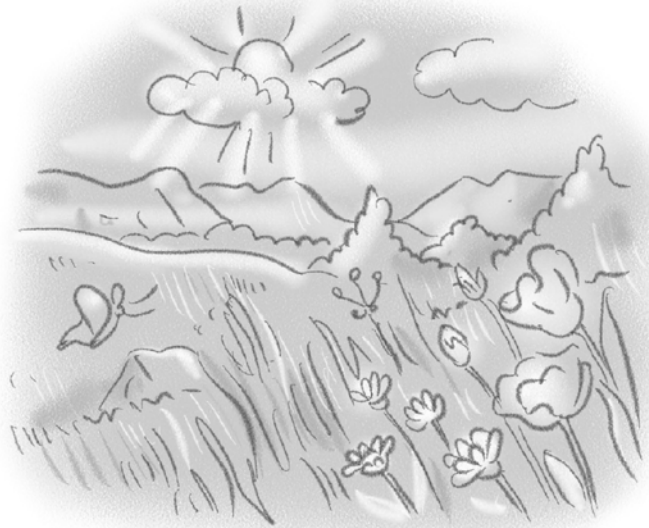
Bee

I pick up pollen from one flower and deliver it to another making it possible for flowers to produce seeds, fruits, and nuts. As a reward, I get to gather sweet nectar and pollen for the hive. The nectar is turned into honey and the pollen is fed to the baby bees. Like all the other workers in the hive, I am female. Before I became a pollinator, I was a cleaner, babysitter, honeycomb builder, and honey chef.



Butterfly

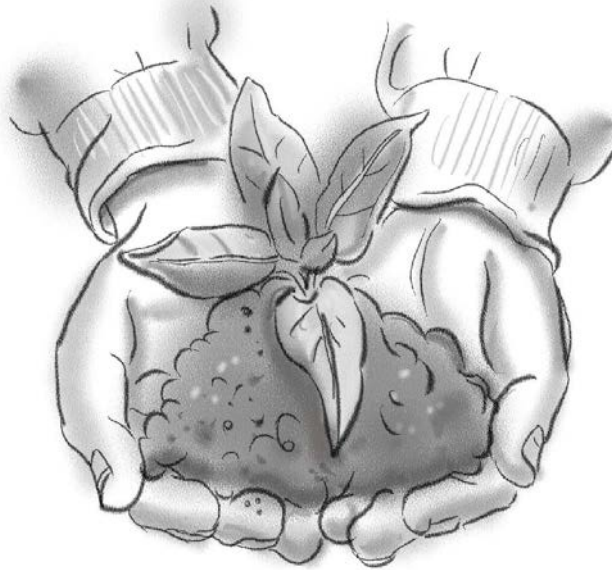
I am also a pollinator. I transfer pollen from flower to flower while sipping nectar through my proboscis. My feet do the tasting. When I land on a plant, taste sensors in my toes let me know whether the plant is good for nectar or for laying eggs. I like to sip minerals at the edge of puddles too. Sometimes I even land on you to sip your sweat!



Nature Detective

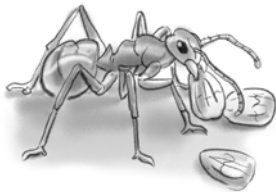
What other organisms can be found in a meadow? Use the blank above to sketch and describe one other creature that lives in or visits a meadow.

List and define each of the underlined words in the space below.



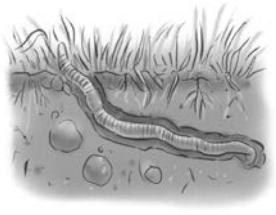
Soil

I'm home to lots of living things. They pay their 'rent' by keeping me fertile. Without me, plants couldn't grow on land. I store the nutrients of living things that have died and decayed. I also hold water and oxygen and contain lots of minerals. Plants use these to grow.



Ant

I live with thousands of other ants in a **colony**. Together, we mix up the soil and its nutrients. We are very strong and can carry many, many times our own weight. Seeds are one of the things that we carry down into our tunnels. One part of the seed is used to feed our young. The other part sprouts into a new plant.



Earthworm

My body is made up of many small segments. I have no skeleton but lots of muscles. I slide through the soil with the help of anchor-like bristly hairs and slippery, slimy mucus. The tunnels I make as I move through the soil provide tiny cavities for oxygen and help the soil drain. I eat lots of decaying plant bits and my waste, known as **castings**, keep the soil fertile.



Mole

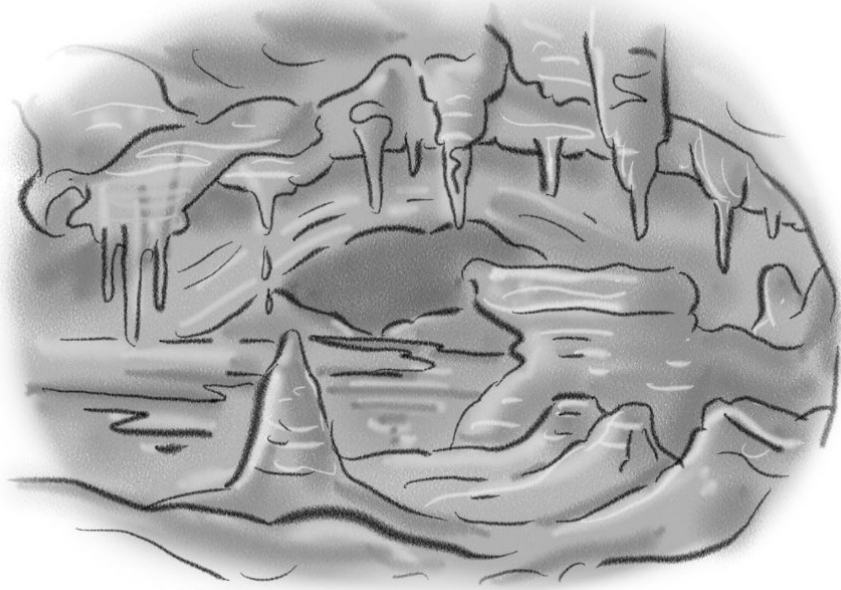
I have soft, velvety fur and large shovel-like front paws with an extra thumb for digging. I have a strong sense of smell but my eyes and ears are nearly invisible. My favorite things to eat are earthworms which I capture and store in underground rooms. I squeeze out all the dirt in the earthworm's **gut** before I eat them.



Nature Detective

What other organisms can be found in the soil? Use the blank above to sketch and describe one other creature that lives in the ground beneath our feet.

List and define each of the underlined words in the space below.



Cave

I'm a very dark, cool, and wet place to live. The organisms that live within my shelter have special adaptations for a life of constant darkness and humidity. Many have no pigment and may be blind or have reduced eyes. Because they cannot see in my darkness, their other senses are more highly developed. Many have extra-long legs and antennae. Organisms that spend their entire lives in a cave are called **troglobites**.

*Interesting facts: The study of caves is called **speleology** and that people who explore caves are **spelunkers**.*



Bat

Flying in the dark is not a problem for me since I use **echolocation** to find my way around. I fly out of the cave in the evening to dine on flying insects, fruits and pollen. When I return to the cave I hang from the ceiling using my sharp, tiny claws. The **guano** that I drop on the cave floor provides the energy and nutrients that makes life for the other cave dwellers possible.



Crayfish

I live in the **subterranean** pools and streams of the cave where I feed on decaying leaves and other waste. Living totally in the dark, I have no pigment in my body or eyes. I am almost see-through!



Cricket

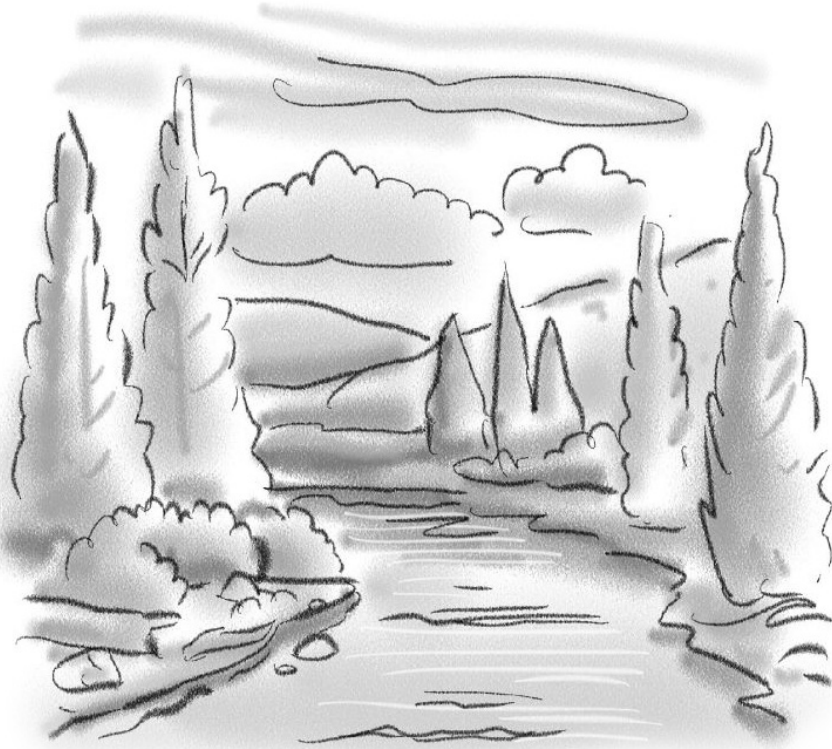
I'm also adapted to live in the dark. I have long antennae and very long hind legs to help me avoid predators. I feed on the flies, beetles, millipedes, and mites that live in and on the guano. In the summer, I venture just outside the entrance of the cave to dine on mushrooms, berries, flowers, and insects.



Nature Detective

What other organisms can be found in a cave? Use the blank above to sketch and describe one other creature that lives in the darkness of a cave.

List and define each of the underlined words in the space below.

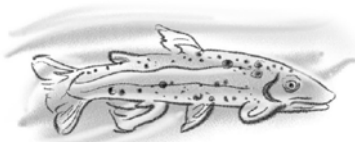


River

I've been growing larger and wider on my way down the mountain as more and more streams have emptied into my waters. As I've grown larger, the water has slowed down. I'm no longer fully covered by a canopy of trees either— the tree branches can't reach across my wide expanse anymore.

Trout

I am known for my changing moods. Sometimes I'm hiding in the shadows, other times I'm leaping out of the water with a splash. My presence means that the river is full of life. I need clean, clear water and lots of insects to survive.



Dragonfly

I can fly straight up or down like a helicopter and I have incredible vision. Almost my entire head is taken up by my eyes. My great vision helps me to keep the mosquito population on the river under control. I can eat up to 30 of them in a single day!



Otter

I live on land but love the water. My burrow is at the water's edge and I'm known to slide down the slippery bank and splash into the river. My webbed feet and powerful paddle-like tail help me to swim and catch tasty fish. I have very thick fur that keeps me dry and warm.



Beaver



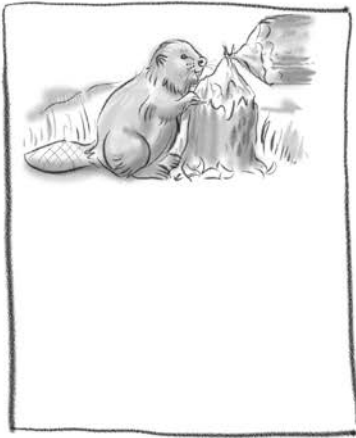
Mink



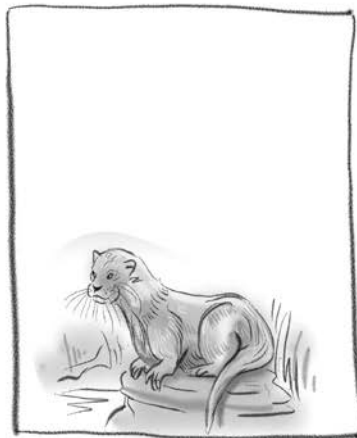
Salmon



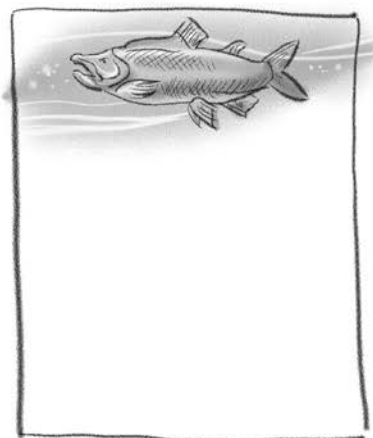
Beaver



Mink

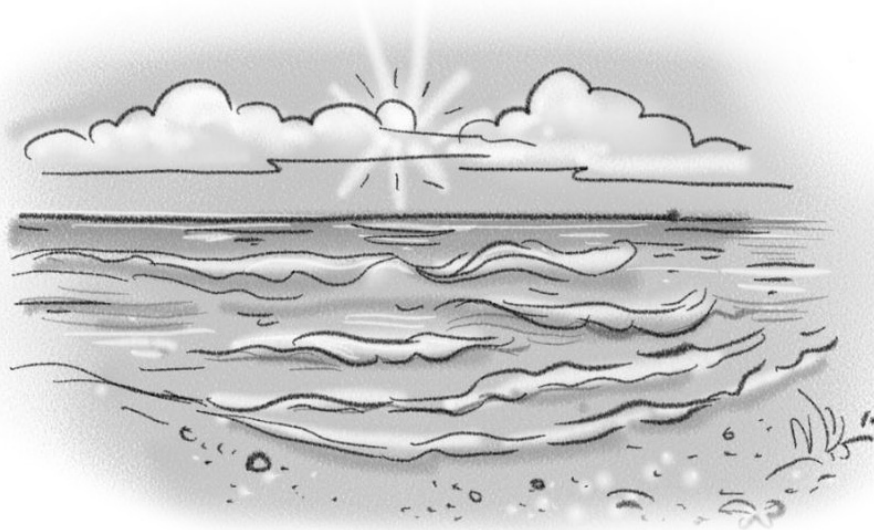


Salmon



Nature Detective

What do beavers, minks, and salmon do in a river? Complete the box for each animal above by stating one interesting fact about each.

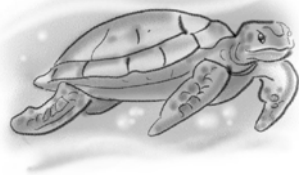


Ocean (Sea)

I receive the water from all the rivers and cover over 70% of the Earth's surface. The plants that I contain provide half of the Earth's oxygen. I am full of life of all shapes and sizes – from the tiniest plankton to the great blue whale. My water is too salty to drink though – about one cup of salt per gallon of water!

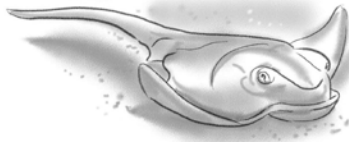
Turtle

I stay close to shore where the sponges I like to eat are plentiful and where there is sand nearby to bury my eggs. When I was young, my top shell, known as a carapace, was in the shape of a heart!



Ray

I also stay close to the shore where I spend most of my time buried in the sand. My wide fins, flattened body, and color make it easy to hide there. Beware: I have spines in my tail with very sharp points!



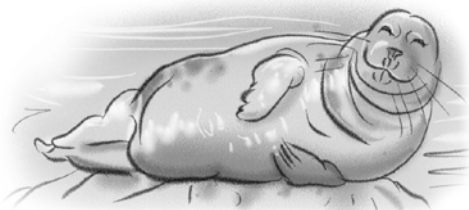
Jellyfish

I drift on the ocean currents but can also move forward by squirting water from my mouth. I have stinging cells in my tentacles that paralyze my prey – fish, shrimp, crabs, and tiny plants – before I eat them.



Seal

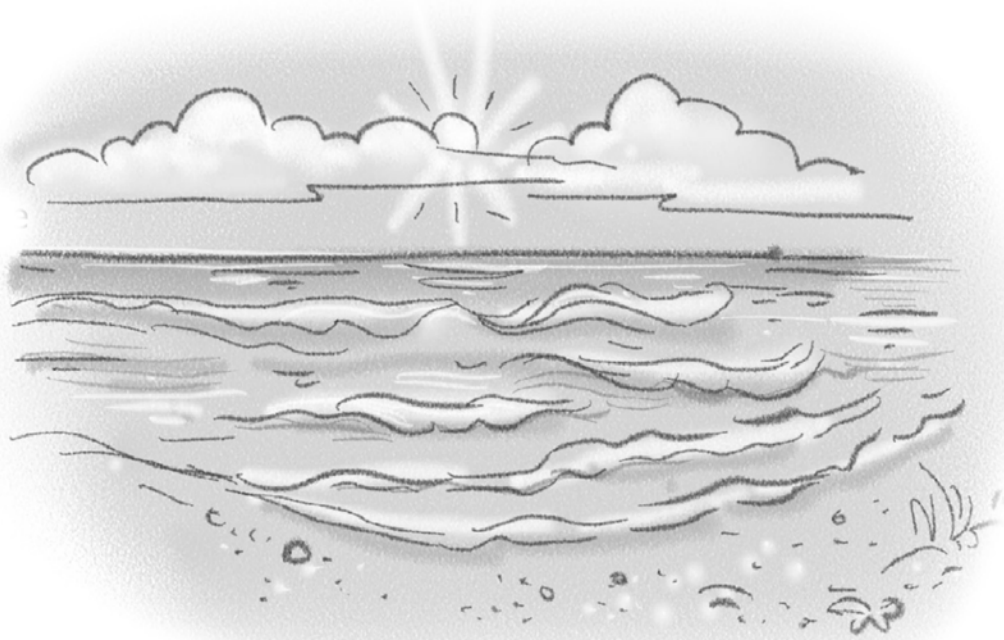
I was born on land but spend most of my time in the water. I can even sleep underwater! I have super sensitive whiskers that can detect the movement of nearby fish, squid and shrimp which I swallow whole!



Squid

I am shaped like a torpedo and have tentacles coming out of my mouth. I am a master of disguise and can change the pattern of my skin as well as the color. When I sense danger, I release a cloud of dark ink to block the view as I make my escape.





Nature Detective

What else lives in the ocean? Use the blank space above to sketch and name another organism that calls the ocean home.



Pitter, Platter & PLOP!

Introduction

In the book *Pitter and Patter*, two drops of rain (Pitter and Patter) fall from a gray cloud and take different routes as they travel through the water cycle. In this activity, students write a story about another rain-drop, or possibly a snowflake, named "Plop."

Materials Needed

- ◆ A copy of the book *Pitter and Patter*
- ◆ "Pitter, Patter, and PLOP!" handout, included in this pdf

Common Core Standards (ELA K-3)

- ◆ Reading: Informational Text
 - Key Ideas and Details (K.1, 1.1, 2.1, 3.1)
 - Integration and Knowledge of Ideas (K.7, 1.7, 2.7, 3.7)
- ◆ Writing
 - Text Types and Purposes (K.3, 1.3, 2.3, 3.3)

Procedure

1. Read aloud the story about Pitter and Patter.
2. Referring to the two pages titled "Explore More—For Kids," follow Pitter and Patter through the water cycle beginning and ending with the gray cloud.
3. Using the handout, instruct students to write a story about Pitter and Patter's friend PLOP! The reverse side of the handout can be used for an illustration. Younger students can begin with the illustration and add a short narrative.
4. Invite children to share their finished stories with the class or in small groups.

Next Generation Science Standards (DCI K-3)

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- ◆ ESS2: Earth's Systems
 - C: The Roles of Water in the Earth's Surface Processes
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