



Bowman's Hill Wildflower Preserve inspires the appreciation and use of native plants by serving as a sanctuary and an educational resource for conservation and stewardship.

Located in New Hope, Pennsylvania, the Preserve has over 4 miles of walking trails wandering through 134 acres of forest, stream valley, pond and meadow.

"Experience what's natural, learn what's native"

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Connect with the Preserve online

www.bhwp.org |  @bowmanshillwildflowerpreserve

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Family Activity Guide: In and Around the Water's Edge



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WONDER AT THE WATER'S EDGE

What would we do without water?

Water is vital to nearly all parts of our life. It connects all living things on Earth, providing both habitat and hydration. The water that we see today has been on this planet much longer than you or I have. It is important that we take care of this precious resource. How can we best take care of our water and the creatures that rely on it? Understanding water and its value can help us be better stewards to our planet. Read on to discover how you can explore the water in a way that's safe and fun and discover all the critters that call it their home!



Shallow rocky creeks are a great place to discover exciting critters. Wherever you explore, remember that you are a guest in these creatures' home. We should be respectful of them and their habitat.

Flip over some rocks. What do you see hiding? Move sticks and leaves to the side to see if anything swims away. Try exploring moving upstream to keep the dirt you kick up from blocking your view. Wherever you explore, make sure you are in a place where it is safe to do so. It's always a good idea to bring an adult with you!



SEE WHAT'S BELOW THE SURFACE

What's that moving so fast! Aquatic animals can sometimes be difficult to observe. They can swim quickly and hide in spots that make them difficult to see. Ripples in the water and the reflection of the sun can make it hard to spot these creatures. Luckily, you can make a lens that will help you see what's hiding just below the water's surface.

Homemade Explorer's Lens:



Materials:

- Empty water bottle
- Cling/plastic wrap
- Tape
- Rubber band
- Scissors/ exacto knife

Directions:

1. Have an adult help you cut off both the ends of your water bottle.
2. Cover both ends in tape to smooth the rough edges.
3. Use a piece of cling wrap to cover one end of the bottle and use a rubber band to hold the cling wrap in place.
4. Decorate your explorer's lens with markers and stickers to make it your own. You are now ready to explore!

To use your lens, place the cling wrap covered end into the water and put your eye up to the opposite end. What do you see? How does the explorer's lens help in your expedition? Enjoy your adventures and learning with your new explorer's lens!

HIDDEN COLORS

What on earth would we do without water? Water is everywhere! Many everyday items have water hiding within them. Not only is it in our food and drinks, it is also in many other objects, like markers. Let's explore how water is used to make some markers work!

Materials:



- Washable markers of a variety of colors
- White coffee filter
- Pipe cleaner
- Spray bottle filled with water

Directions:

1. Draw small shapes and dots across your filter with different colored markers.
2. Pinch the center of your filter and wrap with a pipe cleaner to create the butterfly body and wings.
3. Using a spray bottle, spritz the coffee filter with water.
4. What happens to your butterfly? The colors in your design should run together creating a beautiful watercolor design!

Why does this happen?

The ink inside the marker is made by putting concentrated colors (or pigments) into water. Coffee filters are made of paper fibers that are widely woven and made for water to pass through them, while other ingredients may move through slowly or not at all. When you add more water to this mixture, it causes the concentrated pigments to be carried further apart across the filter, creating a watercolor effect!

The amount of water you add to the butterfly determines how bright or dark your color is.

WATCH THE WATER FLOW

Woah! Look at those sticks flying down the river! You might be too big to ride the current like these twigs, but you can still explore the way the water moves!

Make your own boats from things you find in the forest and have fun watching them race down the stream. Stick to materials that are "dead, down and brown" and never pick things off living plants.

Tips:

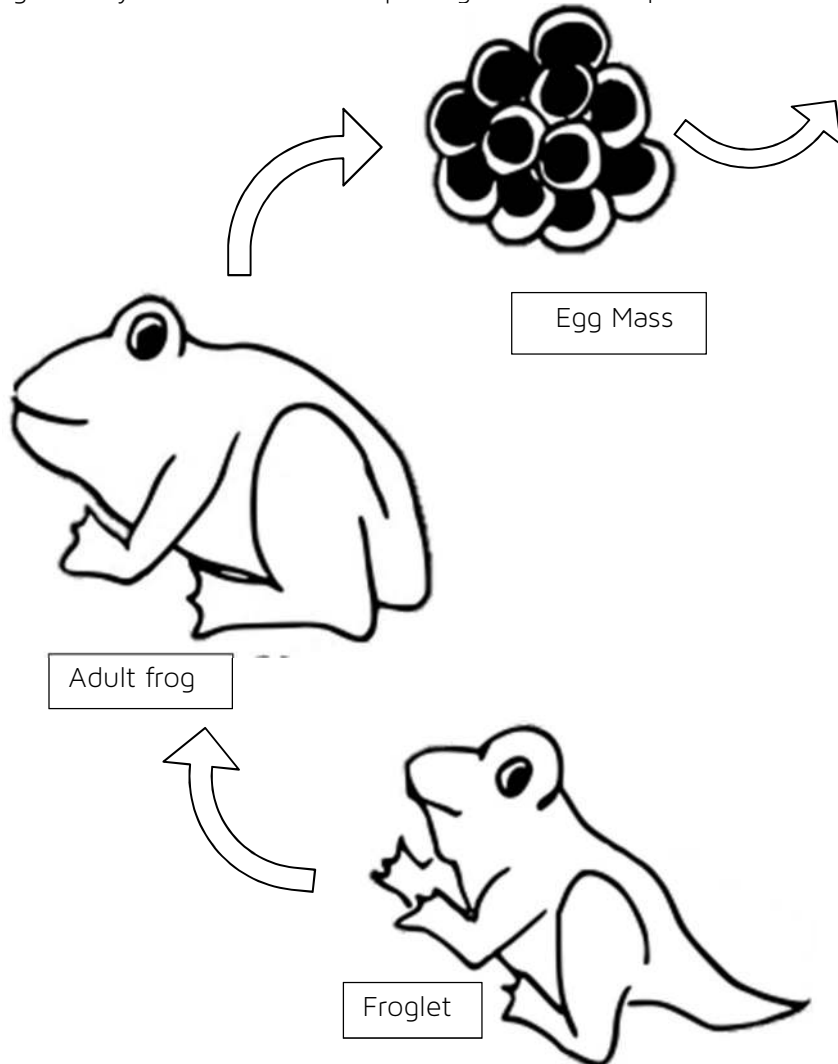
- Sticks and bark float well on their own, or you can tie some sticks together with cotton twine to make a raft.
- You can create a sail using a leaf and stick.
- Place your boat in the water and watch its movements. What happens? Which way does the water flow?



COLORING SHEET:

THE LIFE CYCLE OF A FROG

Frogs, like most amphibians, live part of their life in the water, and part of it on land. Many frogs start their lives in the water, first as eggs, and then tadpoles, before growing legs and maturing into an adult that can survive on land! This change during the frog's life is known as **metamorphosis**. Many other species go through the same process, like dragonflies, damselflies and even mosquitoes! Color the frog's life cycle and have fun exploring the metamorphosis below!



BACKYARD WATERSHED

We all live downstream! A watershed is the land surrounding a body of water where rain and snowmelt flow, filter and collect. Bowman's Hill Wildflower Preserve, and Pidcock Creek, which flows through it, are part of the Delaware River Watershed. This means that the precipitation at the Preserve enters Pidcock Creek, flows to the Delaware River and eventually will make its way to the Atlantic Ocean. The following activity will help you see how water moves through a watershed.

Materials:

- Plastic container
- Sheet of wax paper
- Water
- Several rocks of differing sizes.

Directions:

1. Place the rocks in your container in different places.
2. With a single sheet of wax paper, cover the rocks in the container and press down in the spaces between rocks. You've just made your own model watershed!
3. Gently pour water over the different hills you've created. The water should flow over the landscape's surface. Do you see "rivers" form? Does a "lake" form? Gravity pulls water down mountains and hills to the lowest point, where it begins to collect and pool. Sometimes we can see this collection in a lake or river. This pooling can also take place underground. We refer to this as groundwater.



Things to consider:

If you were to put dirt on the hills, would it end up in your "lake"? How would trees and other obstacles change what you see? What watershed is your town a part of? Learn about your watershed using this tool: <https://mywaterway.epa.gov>

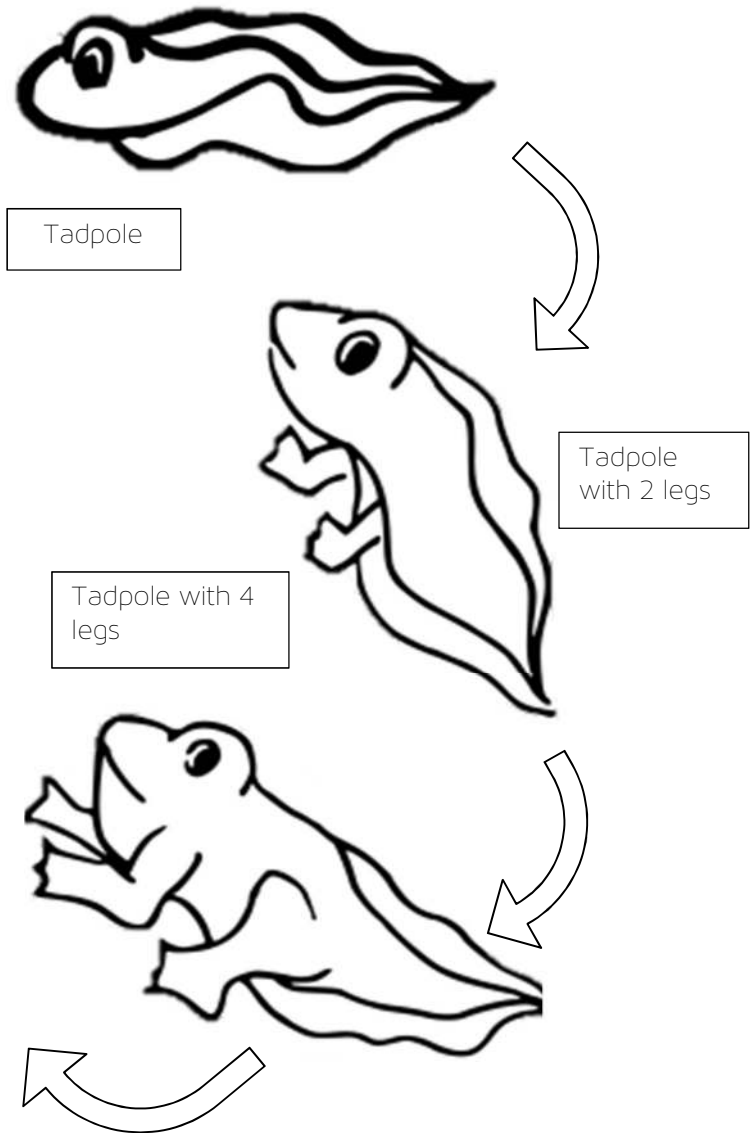
THE SOUNDS OF THE WATER'S EDGE

Splish! Splash! Boink! Groannnnnn! Buzzzzzzzz! Ponds are home to lots of critters that can sometimes be hard to see! Luckily for us, they make lots of noise! When you next visit the pond, explore using your ears. What do all the frogs and nearby birds have to say? Use the space below to record what sounds you hear and guess who's making them. Can you see what's making each sound?

Some things you might hear:

- A high pitched "boing" - Think of a loose guitar string. This is a green frog.
- A low, loud "groan" - This is usually a bullfrog.
- A buzz - There are lots of dragonflies and other insects around the pond to see. They may not go in the water, but they like to be nearby.
- A splash - Quick! Look and see if you see a creature in action! This could be a frog, turtle, snake, or other animal going into the water!

What can you hear? Use the space provided to record



HELP DEWEY FIND HIS WAY TO THE RIVER

Watersheds are pretty big areas. That means lots of places for a water droplet to get held up on its journey through the water cycle! Dewey Droplet is trying to make his way to the river from the clouds. Can you help him find his way to the mountain stream?

