THE PARKLANDS of Floyds Fork

JUNIOR EXPLORER

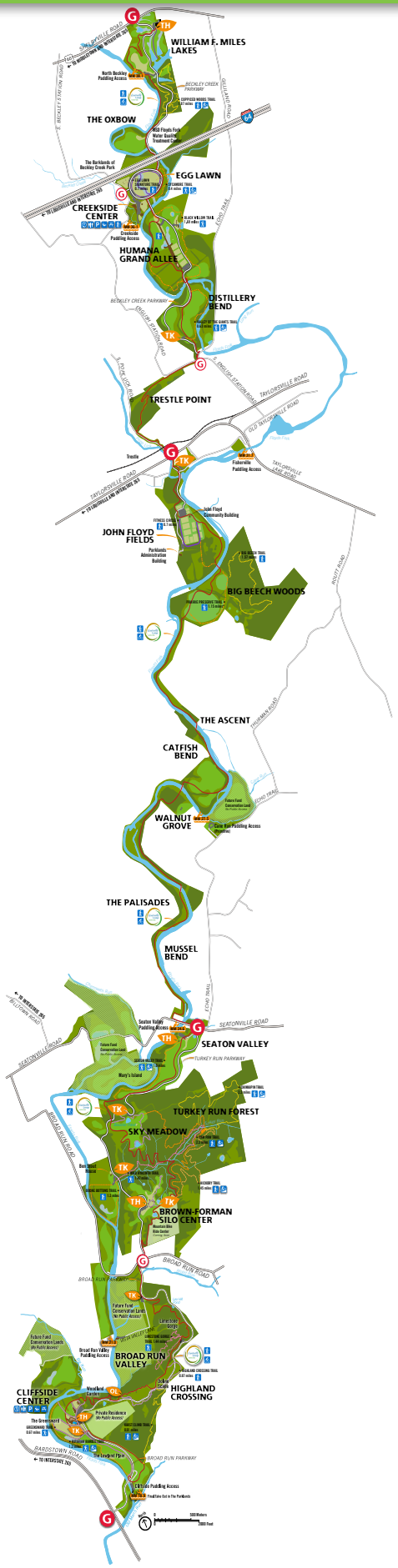
THE PARKLANDS OF FLOYDS FORK

OUTDOOR CLASSROOM

THIS BOOK BELONGS TO: _____

I BECAME A JUNIOR EXPLORER ON: _____

WELCOME TO THE PARKLANDS OF FLOYDS FORK



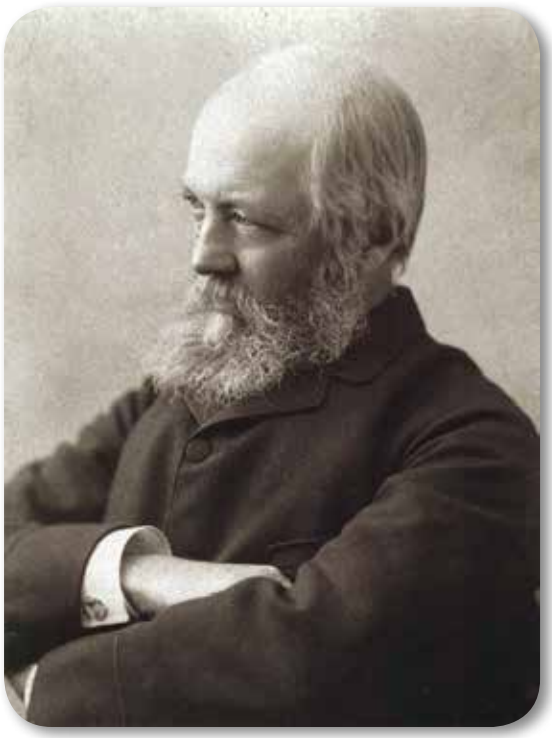
The Parklands of Floyds Fork is a donor-supported public park that is comprised of 4 parks: Beckley Creek Park, Pope Lick Park, Turkey Run Park and Broad Run Park. These four parks stretch across nearly 4,000 acres in eastern Louisville and are connected by 27 miles of Floyds Fork and 19 miles of the Louisville Loop.

The Parklands protects and enhances the landscape for countless species of plants and animals including:

- 25 species of reptiles and amphibians
- Over 40 species of fish
- 20 species of rare freshwater mussels
- Federally endangered gray and Indiana bats
- 19 species of mammals such as otters, flying squirrels, mink, and beaver
- 138 species of birds
- 450 species of native plants, including the endangered Kentucky glade cress

THE INSPIRATION

In the early 1890s, Frederick Law Olmsted came to Kentucky to design one of his masterpieces: the Louisville parks system. Working on lands located well beyond the edge of the city, Olmsted created a ring of parks and parkways that remains one of Louisville's most remarkable assets. As the city grew around these parks in the early twentieth century, they perfectly encapsulated Olmsted's vision of "bringing nature into neighborhoods" as a way of shaping a city's geography, its social interactions, and its economies. Today, these urban parks create some of the most livable neighborhoods in the nation.



The Parklands has a rich natural and cultural history. The activities in this book are designed to help you get involved at The Parklands and learn about the plants and animals that call this place home.

JUNIOR EXPLORER HANDBOOK OVERVIEW

COLLECT TURTLE POINTS!

The activities in the Junior Explorer handbook are rated by difficulty and time needed to complete the activity. Use the guide below to determine how many Turtle Points you need to collect to become a Junior Explorer!

Once you have collected enough Turtle Points, visit the PNC Achievement Center for Education and Interpretation in Beckley Creek Park. A Parklands Ranger will check your book and award you with a special Junior Explorer Pin and Certificate.

Get outside and start exploring!

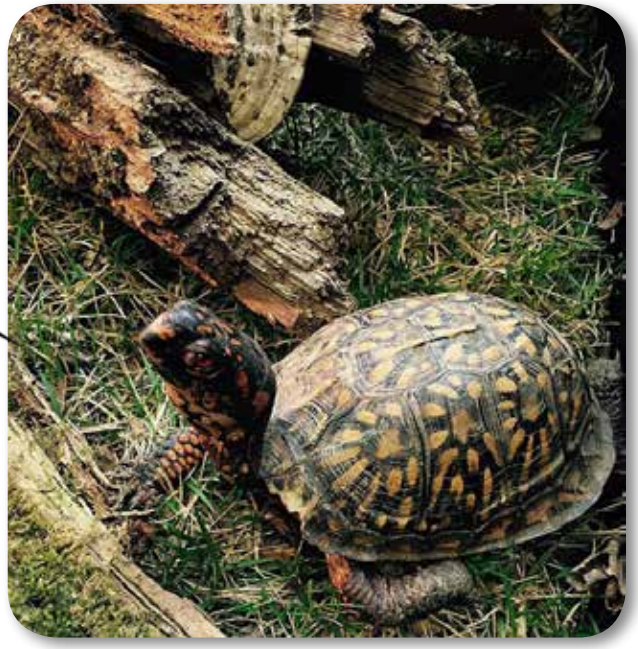
Ages 4-5: Collect 5 Turtle Points

Ages 6-8: Collect 9 Turtle Points

Ages 9-11: Collect 12 Turtle Points

Ages 12 and up: Collect 15 Turtle Points

Hello! I'm Ranger Russell. Welcome to the Junior Explorer program. Get ready to learn all about my home and friends. Once you complete this book, I'd love to meet you! Just ask one of the Parklands Rangers to introduce us. Happy Exploring!



Ready for your Junior Explorer badge and certificate? Visit www.theparklands.org/pnccenter to view our Welcome Center Hours of Operation.

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SAFETY FIRST!

As a Junior Explorer, it is your job to stay safe and keep the park safe, too! Before heading out on your adventures, make sure you are prepared!

WHAT TO BRING:

- ☐ Sunscreen
- ☐ Bug Repellent
- ☐ First Aid Kit
- ☐ Map (Pick up a Parklands map at the PNC Achievement Center or at any trailhead in the park.)
- ☐ Proper footwear – boots/sturdy shoes
- ☐ Water
- ☐ Snacks – trail mix, granola bars, fruit
- ☐ A buddy or adult
- ☐ Cell phone with emergency numbers

You may come across plants, insects and animals that are not so friendly. BUT there are ways to keep an eye out and protect yourself! Some organisms warn you by being flashy with bright colors and patterns. Some aren't so easy to spot….

Here are a few to watch out for:

Poison Ivy
"Leaves of Three, Leave it be!"

Stinging Nettle

Poison Hemlock

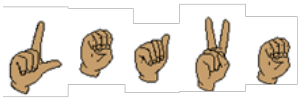
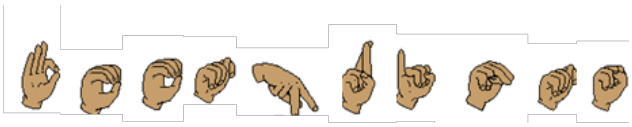
Ticks

Please Leave No Trace.
Animals can't eat trash, so **leave nothing but footprints.** And everything that's in the forest is needed, so **take nothing but pictures!**

SECRET MESSAGE

Decode the sign language to get a secret message from Ranger Russel about Leave No Trace.

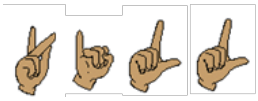
_____ nothing but _____

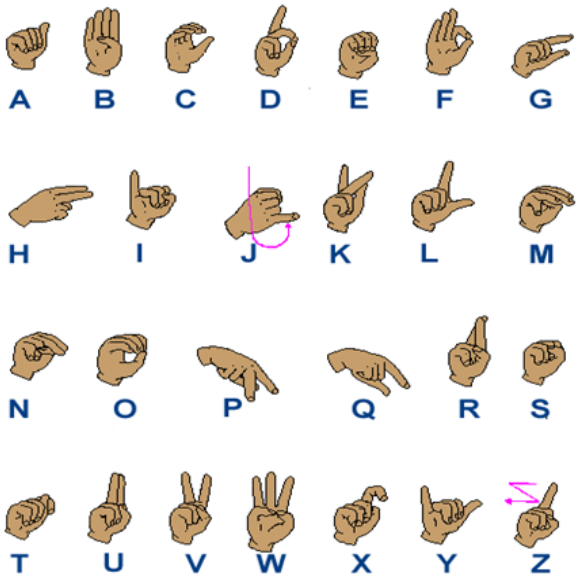
 nothing but 

_____ nothing but _____

 nothing but 

_____ nothing but _____

 nothing but 



EXPLORER BINGO

Get out and explore The Parklands! Some of these items can be found in all four parks. Others are specific to one park. Pick a trail and keep your eye out for some of the many plants and animals you will meet. If you find what you're looking for, mark it off with an X. Try to get 5 X's across, down or diagonally, but the adventure doesn't have to end there… see if you can find them all!

 Sycamore Tree	 Yellow Silo	 Deer	 Tulip Poplar	 Crayfish
 Toad	 Butterfly	 Woodpecker	 Freshwater Mussel	 Osage Orange
 Blue Heron	 Brachiopod (fossil)	 Bird Nest	 Paddling the Fork	 Squirrel
 Walking a Dog	 Honey Locust thorns	 Snake	 Stout House	 Red Winged Black Bird
 Floyds Fork	 Turtle	 Horn Coral (fossil)	 Riding a Bike	 Duck

Which trail(s) did you hike?

_____

What time of day did you hike the trail(s)?

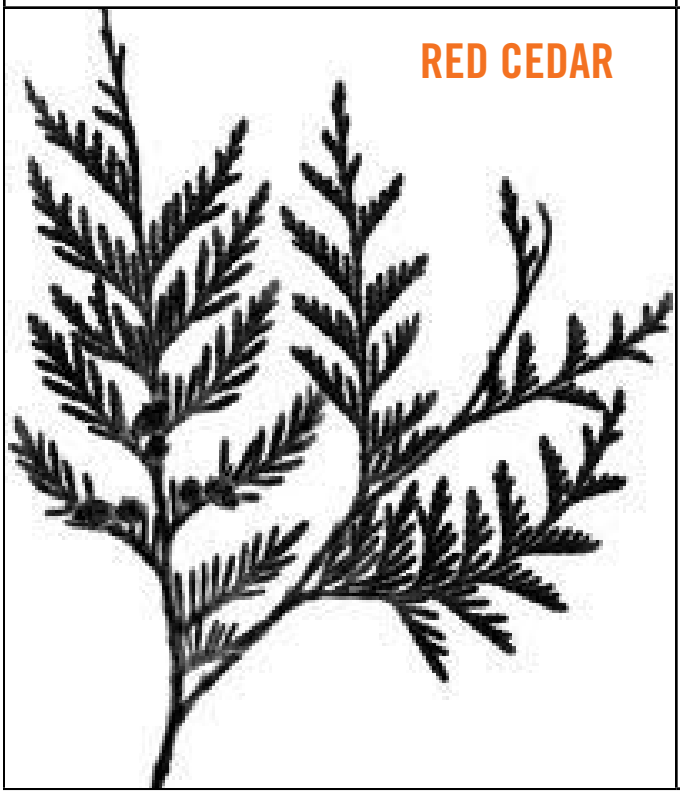
_____

TREE LEAF ID

Let's go on a hike! Find the leaves listed here and draw or rub a matching imprint in the right hand box. You may use a pencil or crayon for rubbing!

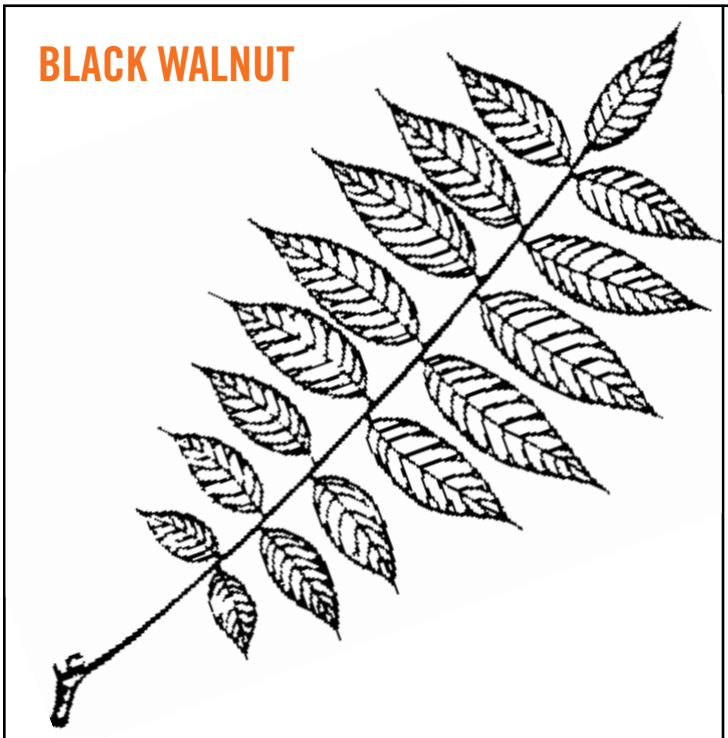
SYCAMORE

RED CEDAR



TREE LEAF ID

Let's go on a hike! Find the leaves listed here and draw or rub a matching imprint in the right hand box. You may use a pencil or crayon for rubbing!

BLACK WALNUT 	
WHITE OAK 	

FOLLOW ME THROUGH THE WOODS

While exploring the park, you may not see any animals, but you can find evidence that they were in the area. Animals leave behind scat (poop), tracks, broken plants, fur and nests. We are going to look at four animals in the park that we rarely see, but know exist because of the tracks they leave behind. Can you match the animal with its track?

Visit the Osage Orange Explorer Trail track box in Beckley Creek Park for more tips and to practice!

BEAVER

COYOTE

DEER

SALAMANDER

AQUATIC MACROINVERTEBRATE MATCH

Macroinvertebrates can be one of the most sensitive organisms to a change in water quality. Help them out by doing your part to keep Floyds Fork healthy and don't pollute!

Aquatic: lives in water **Macro:** can be seen without a microscope **Invertebrate:** does not have a backbone

Draw a line from the Macroinvertebrate to the matching adult.

FOUND IN WATER

Damselfly Nymph

Stonefly Nymph

Dragonfly Nymph

Water Penny

FOUND ON LAND

Water Penny Adult

Dragonfly Adult

Stonefly Adult

Damselfly Adult

CRITTER SEARCH

Read below to learn about critters living in the fork! Use the bold words on the left to complete the word search at the bottom of the page? **HINT:** words can go up, down, across, diagonal, or backwards

Word	Definition
Crayfish	Also known by the name crawdad, crawdaddy or crawfish. Crayfish are fresh water crustaceans, which resemble a small lobster, and inhabit streams and rivers.
Freshwater Mussel	These bivalves (two shelled) are filter feeders that help to keep our waters clean. They are sensitive to pollution, so it is important to keep our streams healthy!
Brachiopod	Kentucky State Fossil. Brachiopods lived in shallow seas 450,000,000 years ago.
Spotted Bass	Kentucky's State Fish. They prefer small to medium streams and rivers with clear, slow moving water, and gravel or rock bottoms.
Macroinvertebrate	Underwater organisms that live in our creeks and streams. They can be seen with the naked eye (macro) and lack a backbone (invertebrate). The opposite of invertebrate is vertebrate (have a backbone).
Northern Water Snake	This harmless, NON-venomous snake is commonly mistaken for a copperhead and feeds predominantly on fish. This snake can be reddish, brownish to light gray.
River Otter	River otters are carnivores. They eat a variety of fish and shellfish, as well as small mammals and birds.
Fowlers Toad	They live in flood plains and woodland borders. They dig burrows in the mud where they spend the day and hunt for insects at night.
Beaver	These herbivores use their strong teeth to cut down trees and build dams. These dams can disrupt existing habitats downstream, but help create new habitats upstream.
Salamander	These amphibians typically have slender bodies, short legs, long tails and can be found in moist habitats.
Great Blue Heron	These large North American birds stand 3 to 4.5 feet tall and are typically seen along coastlines, in marshes, or near the shores of ponds and streams.
Snapping Turtle	A large American freshwater turtle with a long neck and strong jaw. These turtles have a protrusion at the end of their tongue that looks like a worm. To catch prey, the snapping turtles hold out their tongue so that fish mistake it as a worm and get captured by the turtle.

B M T U R T L E F D S Z K W W
W J U W G D O T U M M F G A H
R S U S M N A A N H A Z X T C
K L D W S E I O D S C N S E O
P N P W R E R P P J R O R R I
C O D G F T L O P T O R E M M
R G E O H F T R O A I E V Y A
A N O E P T L S B W N H A L C
Y D R T E O E U S B V S E Z R
F N S D L B I S H C E S B B E
I Y P A R W U H M D R X A L L
S J E A I J K H C R T S B Z W
H M T E K A N S D A S O L X O
Y E R E T A W H S E R F U S F
R E D N A M A L A S I B E P V

TRACK THE TURTLES

DID YOU KNOW THAT SOME TURTLES MIGRATE?

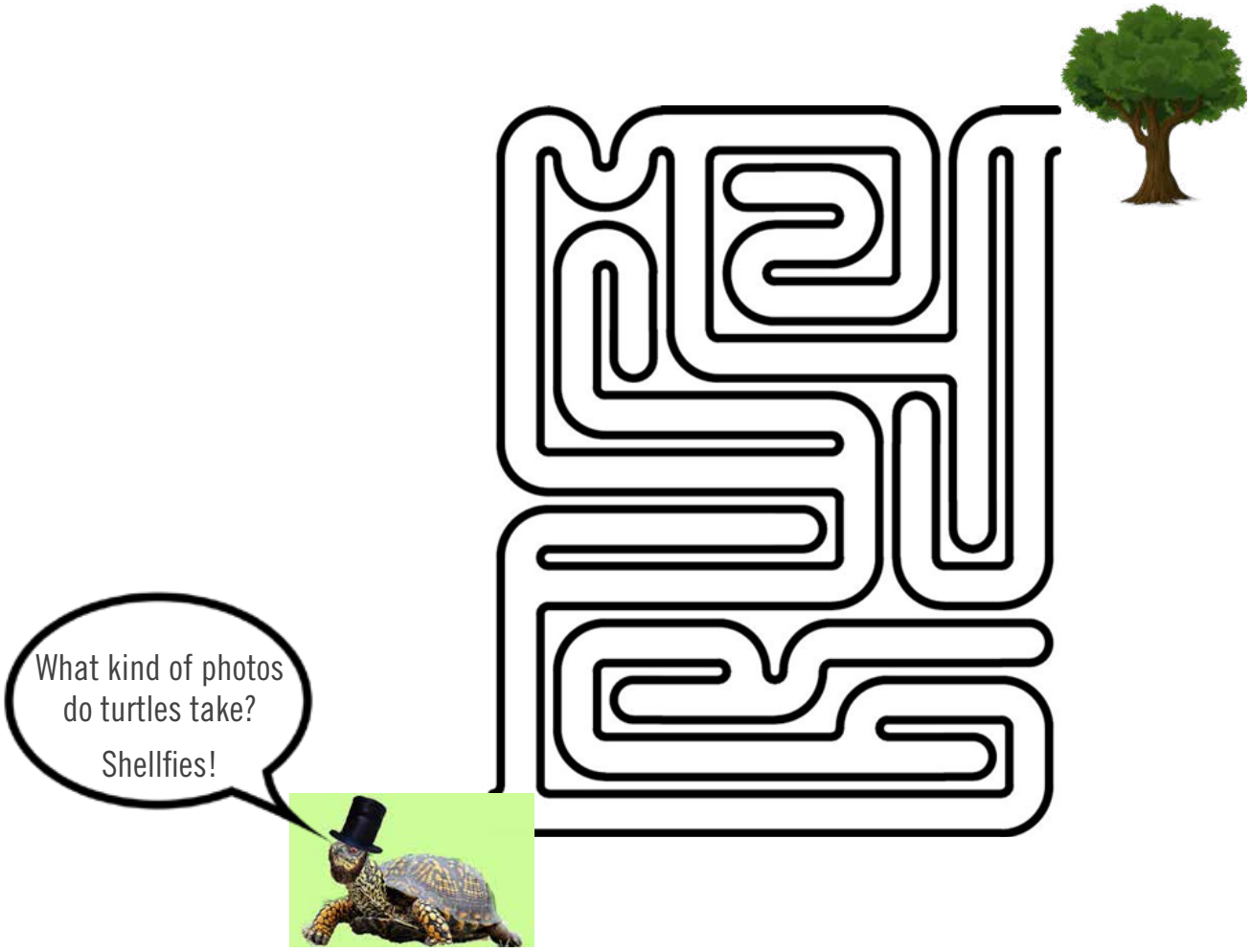
The Eastern Box Turtle, one of the turtle species found here in The Parklands, ***migrates*** twice a year. Once they wake up from their ***hibernation*** (a long sleep some animals take over the winter months to conserve energy for the coming year), they emerge from the forest and spend much of the summertime in open fields and forest edges. Their primary goal is to find a mate and produce ***offspring***—the next generation. Many times, this search for a mate results in the male turtles protecting their ***territory*** (the area of land claimed by an individual animal, usually a male). Once the Fall season sets in, the turtles migrate back to their hibernation spots and begin the cycle again for the next year.

FUN FACT: Some box turtles can live up to a hundred years! Imagine going through this cycle a hundred times!

HELP THE TURTLES!

Much like a chicken, turtles often need to cross the road to get where they need to go. If you see a turtle in the middle of the road, help them cross! **First**, check both directions to make sure no cars are approaching. Once you are sure you are in a safe path, carefully pick up the turtle and place them on the side of the road they were facing (since that's the direction they were headed).

You can practice by helping Ranger Russell cross the road and get through the maze below!



ARTFUL ADVENTURE

In the past, all dyes and paints had to be obtained from the natural world, directly from animals, plants and minerals. Today, when we want to draw a picture, we reach for crayons, markers and pencils.

Use the next page to create a picture using only natural materials.

When making and using your natural paints, be sure to wear old clothes, as some colors will stain clothing.

NOTE: Do not use poisonous plants! If you are unfamiliar with a plant, leave it alone and use a field guide to identify which parts of the plant are safe to use.

There are many materials you can use to experiment, but below is a list of suggested materials that are safe to use.

COLOR	NATURAL MATERIALS
Brown	Mud, soil – color depends on local geology Walnut outer covering on shells
Purple/Pink/Red/Blue	Mulberries, strawberries, blackberries, beetroot, ink berry
Red/Orange	Paprika, chili powder, rust scrapings
Black	Soot or charcoal
Grey	Chalk and charcoal mixed
White	Chalk
Green	Leaf rubbings (mix yellow and blue)
Blue	Blueberries (add distilled vinegar for a brighter hue)
Yellow	Boiled onion peel

Don't have a paintbrush? That's ok! Natural materials make great art tools. Go on a nature walk and look for different textures and patterns. Talk about which pieces of nature you think will make good prints (feathers, leaves, twigs, flowers, pine needles, rocks, pine cones)

You only need a few materials to create a natural brush!

- Sticks – (one for each brush)
- Elastic band or string
- Materials from your nature walk

Making the nature paint brushes is easy. Simply attach a piece of nature to each stick using string or an elastic band.

When finished with your tools, please remember to leave them outside!

ARTFUL ADVENTURE

Use this page to draw and paint with the materials you found on your nature walk!

WHO'S AWAKE?

Different animals are active during different times of the day. Some are awake during the day, and some are awake at night. Some animals, like the White-Tailed Deer found here in The Parklands, are only active during ***dawn*** (very early morning) and ***dusk*** (late evening). That's called being a ***crepuscular*** organism. As humans, we are active during the day, which is called being a ***diurnal*** organism. Other animals, like raccoons and opossums, are active during the night, which is called being a ***nocturnal*** organism. Even some plants open their flowers at different times of the day!

As a Junior Explorer, one of your tasks is to visit The Parklands on different days at different times of the day to see what different animals might be active. Take some notes on what you see!

NOTE: The park closes at dusk. Ask a ranger about special night time programs in the PNC Achievement Center.

ANIMAL #1 _____

ANIMAL #2 _____

ANIMAL #3 _____

ANIMAL #4 _____

ANIMAL #5 _____

If you see more animals, or anything else that catches your attention, write it down! The Parklands is full of natural wonders (too many to count!), so there's plenty to see. The more you look, the more you'll find! Happy exploring!

_____

_____

_____

_____

_____

NATURE HAIKU

A haiku poem consists of three lines, with the first and last line having 5 syllables, and the middle line having 7 syllables. This form of poetry started out as a popular activity in Japan. Haikus can have many themes, but our favorite is nature themed haikus.

Here is a poem by Basho Matsuo, the first great poet of haiku in the 1600s:

An old silent pond...

A frog jumps into the pond,

splash! Silence again.

Now, it's your turn! Find a quiet spot in the park and write your own haiku!

_____

(5 syllables)

_____

(7 syllables)

_____

(5 syllables)

WHAT IS LURKING IN THE LEAF LITTER?

Leaf litter, or piles of decaying plant matter (like leaves), may seem uninteresting, but if you take a closer look you'll find a small world of critters!

Leaf litter holds water in the soil, providing habitat for amphibians, fungi and a variety of insects. Predators, such as snakes, use the leaf litter for ***camouflage*** and hunting.

Within the leaf litter, some very important critters, known as ***Decomposers***, make their home! They break down the decaying (dead) matter and put nutrients back into the soil that plants use to grow big and strong.

Leaf litter is important for my survival! It provides me with shelter, camouflage and food. Slimy, wiggly worms are my favorite!

Decomposers are all around us, we just need to take time to seek them out. So, find a large pile of leaf litter, grab a magnifying glass and a plastic cup to examine your critters more closely.

REMEMBER these are living creatures, and you are visitors to their home, so you must be careful to not harm them. Please return them to their home when you are finished observing.

HOW MANY DECOMPOSERS CAN YOU FIND?

WHAT IS LURKING IN THE LEAF LITTER?

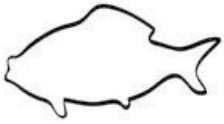
Decomposer (photo)	Name	How many did you find?	Observation notes
	Earthworm		
	Pill Bugs “Rolly Poly”		
	Millipede		
	Slug		
	Snail		
	Fungi		
	Other		

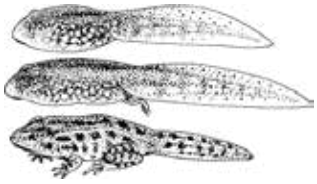
CLASSIFYING ANIMALS

Color the pictures based on what type of animal they are!

AMPHIBIAN (COLOR RED)

- ***Vertebrate*** – have a backbone
- Lay eggs in water
- ***Ectothermic*** "cold-blooded" – They regulate body temperature with surrounding temperature
- Slimy skin
- Go through ***metamorphosis***
  - (example: Tadpole to Frog)



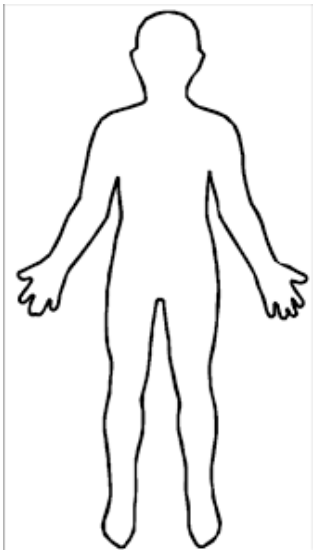


REPTILE (COLOR BLUE)

- Vertebrate
- Lay eggs on land
- Ectothermic
- Scaly/rough skin

BIRDS (COLOR PURPLE)

- Vertebrate
- Lay eggs
- Endothermic "warm-blooded" – Their temperature is regulated by the body
- Have feathers

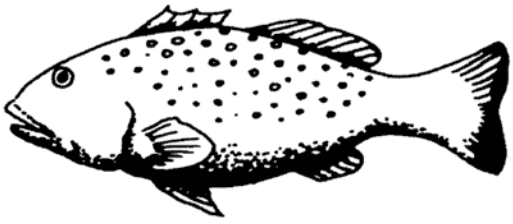


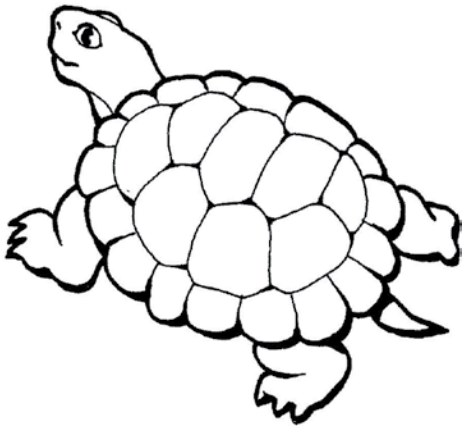
MAMMALS (COLOR YELLOW)

- Vertebrate
- ***Endothermic*** "warm-blooded"
- Hair/Fur
- Have live birth
- Babies drink mother's milk

FISH (COLOR ORANGE)

- Vertebrate
- Lay eggs in water
- Breathe through gills
- Ectothermic "cold-blooded"
- Scaly/rough skin





LET'S EAT!

Every living plant and animal must have energy to survive. Plants rely on soil, water, and sunlight for energy. Animals rely on plants as well as other animals for energy. In an ***ecosystem***, plants and animals rely on each other to live. The animal kingdom is made up of numerous ***predator-prey relationships***. Scientists demonstrate these relationships with food webs. A food web describes how different organisms eat each other. There are different names to explain what an animal eats.

All of the energy made in the food web comes from the producers, or plants. The rest of the food web consume the energy.

- ***Producers***
  - o Plants – they make their own food and produce energy for the ecosystem.
- ***Consumers***
  - o ***Carnivore*** – Animals that only eat other animals
  - o ***Herbivore*** – Animals that eat only plants
  - o ***Omnivore*** – Meat and plant eating animals
- ***Decomposers*** – eat decaying (dead) matter and help put nutrients back in the soil.

Each animal has specialized teeth to aid in the eating process. Carnivores need sharp teeth to kill their prey, whereas herbivores need large dull teeth to help grind up plant matter. Omnivores have a mix of dull and sharp teeth to aid in the eating of plants and animals.

Let's take a look at the skull of an herbivore, carnivore and omnivore. Based on their teeth, see if you can identify the animals as an omnivore, herbivore, or carnivore.

OPOSSUM

I am a(n)_____

COYOTE

I am a(n)_____

DEER

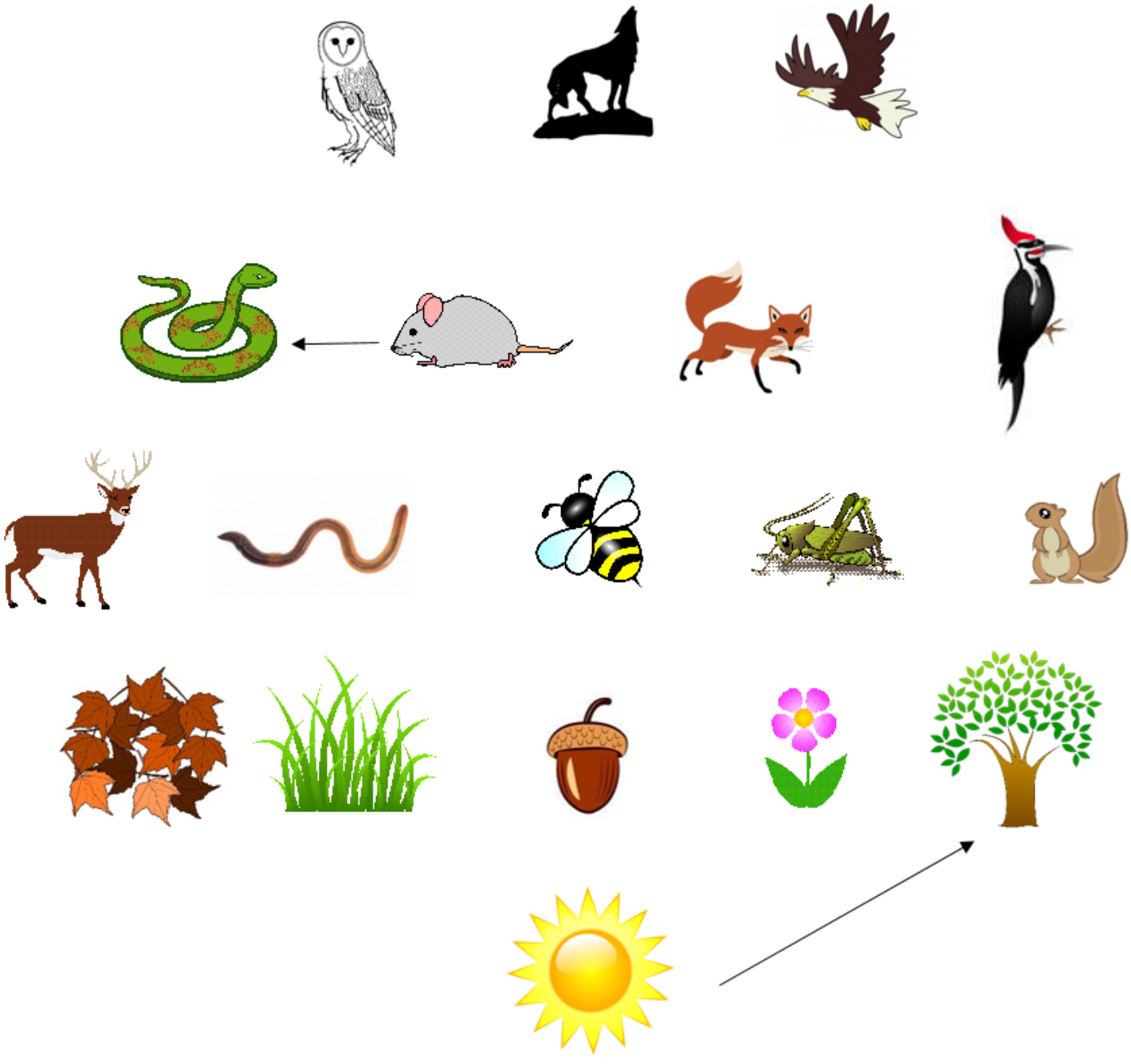
I am a(n)_____

FOOD WEB FRENZY

Using the information you learned on the previous page, complete this food web by drawing arrows between each item.

The arrows will represent the flow of energy. Grass ➔ Deer = Deer eats grass.
The energy from the grass is being taken up by the deer.

Use arrows to complete the food web below. Remember, many animals share similar food sources so you may have more than one arrow going to or coming from the same item.



JOURNEY THROUGH TIME

Trails found in The Parklands are filled with park visitors hiking, biking, or walking their dog, but before The Parklands, this land was used by Native Americans, early settlers, and surveyors such as Daniel and Squire Boone. The ways people used the land then and now have changed, but there are some similarities.

Circle the corresponding numbers to match the people who have explored The Parklands with their TOOLS, FOOD, HOUSING, and mode of TRANSPORTATION.

Frontier Surveyor (1)

Native Americans (2)

Landowner (3)

Park Visitor (4)

TRANSPORTATION

1 (2) 3 4

1 2 3 4

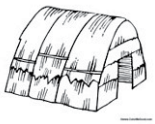
1 2 3 (4)

1 2 3 4

LODGING

1 2 3 4

1 2 3 4



1 2 3 4

1 2 3 4

FOOD

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

TOOLS

1 2 3 4

1 2 3 4

1 2 3 4

1 2 3 4

BIG ANIMALS, BIG APPETITES

Woolly Mammoths roamed the earth during the Ice Age, 1.8 million to 11,000 years ago. They were bigger than today's elephant (and a lot hairier)! Let's find out how much food and water they needed every day to grow big and strong.

Count the water jugs to see how many gallons of water they drank each day!

Woolly Mammoths drank _____ gallons of water a day! Do you know how much water you drink a day?

Mammoths would roam the earth for 16 hours a day eating small grasses and flowers. Each picture of grass equals 100 pounds!

Count the pictures to see how many pounds of food they ate a day.

_____ x 100 = _____ pounds of food a day!

Wow! Can you believe they eat that much food?!

Where do you think all of that food goes? **HINT:** It helps fertilize the soil.

If you said POOP, you're right! Count the piles to see how much they pooped a day. Each pile equals 50 pounds.

_____x 50 = _____pounds of poop a day!

ANCIENT HISTORY

The Parklands of Floyds Fork is home to many plants and animals. From the deer who graze in the meadows, to the birds in the trees and the fish in the stream, there is much to see! But do you know what was living here 450 million years ago (mya)?

Did you guess dinosaurs? Currently there are no ***fossil*** records of dinosaurs in Kentucky, but maybe that's because the fossils we find in Floyds Fork are OLDER than the dinosaurs. Before we talk about what lived here, let's explore the environment!

Kentucky wasn't always meadows, forest and streams. It used to be covered in water, a shallow sea. Have you ever visited the ocean? What animals live in the ocean?

_____

Did you guess sharks, dolphins, whales and fish! If you did, you're correct, these animals do live in the ocean, but what lived here 450 mya in the shallow sea resembles what you might find today in the shallow parts of the ocean. Many people mistake them for plants because of their branching appearance and their tendency to "take root" on the ocean floor, but they are actually animals.

Think you know what it is?

_____

If you guessed coral, WAY TO GO! The shallow sea of the ***Ordovician*** period was home to a variety of coral, clams and snails. If you visit one of the many gravel bars along Floyds Fork, you can get a glimpse into the ancient history of The Parklands.

Take a visit to the Sycamore trail in Beckley Creek Park and see how many fossils you can find! Some are more common and easier to spot than others. Can you find them all?

Which of the fossils did you find most?

_____

Which one was difficult to find?

_____

The image on the right is from the University of Kentucky. It depicts what the shallow sea looked like during the Ordovician period. In the image, we see brachiopods (lower right hand side), cephalopod (squid like creature in the middle next to a trilobite). In the back of the photo you see branching bryozoan, crinoids and horn coral.

COMMON FOSSILS OF THE ORDOVICIAN PERIOD FOUND IN FLOYDS FORK

Brachiopod

Horn Coral

Colonial Coral

Bryozoan

Crinoid

Cephalopod

ANCIENT HISTORY

Using the picture on page 25 and your fossil findings at the gravel bar, create your own artistic depiction of what the shallow seas of the Ordovician period looked like. Be sure to label your animals!

FOSSIL ID

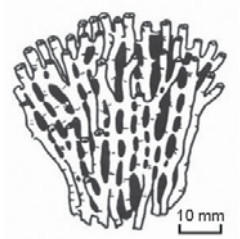
Match the fossil to the correct description.

Crinoids

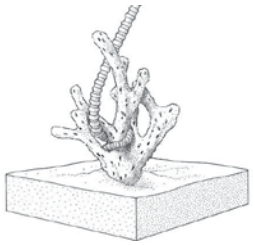
Cephalopods

Brachiopods

Horn Corals



Colonial Corals



Bryozoans

Our appearance is similar to a **honeycomb**. We vary in shape, from flat to **conical** to **spherical**.

Our outsides have a **wrinkled appearance**. We grow in a long cone shape like a bull's horn. We have many **tentacles**, in a flower-like appearance, sticking out to gather food.

My kind still exist today, about 800 species, but they have advanced over the years. All 17,000 members of these ancient fossils were **squid-like, with tentacles**, but **had straight external shells**.

I use a fleshy appendage to anchor myself to the sea floor. I am a filter feeder and gather microscopic organisms from that water with a tube like structure with hairs that is protected by my **two shells**.

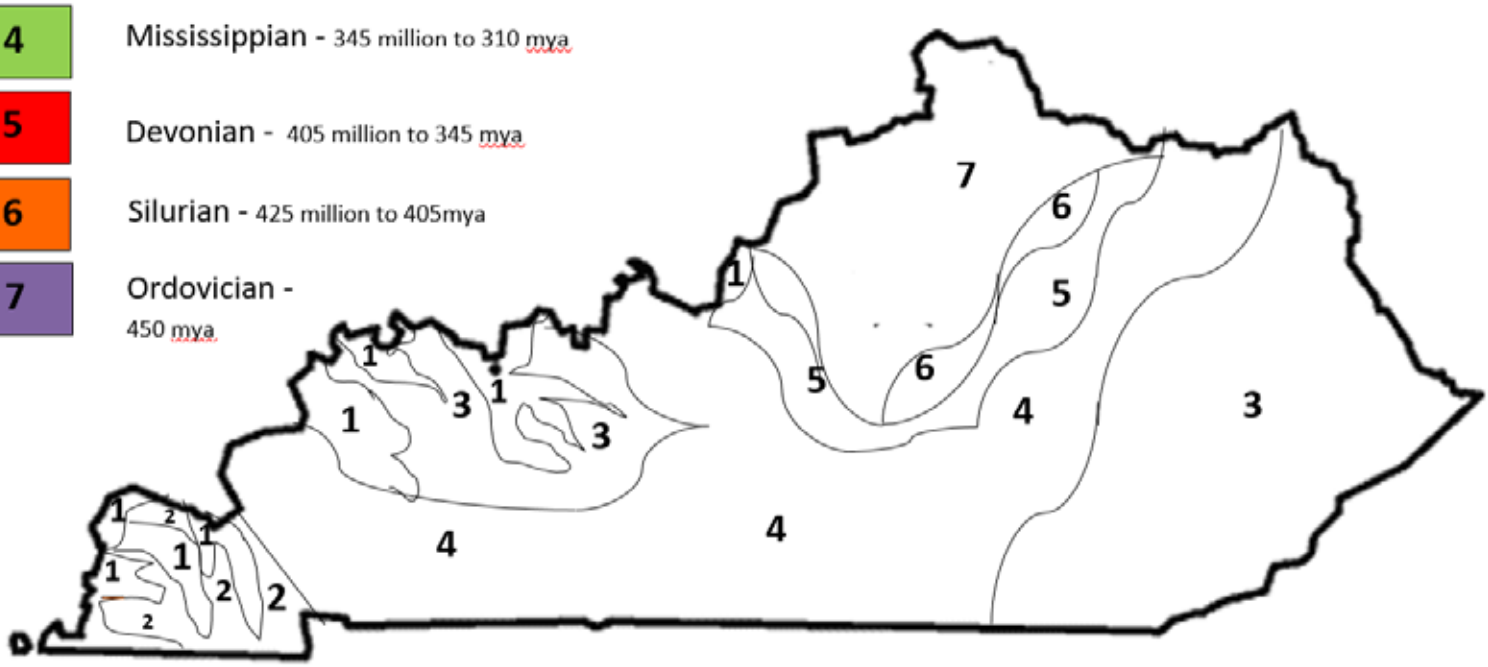
We are some of the oldest fossils on the planet. We are still alive today, but live in deeper waters. We are commonly called **sea lilies**.

I am a filter feeder with flower-like tentacles that capture food floating by in the water around them. I am made up of tiny animals that build homes for themselves, creating a **branching shell**.

KENTUCKY GEOLOGICAL LAYERS

Get a glimpse of the exposed geological layers of Kentucky with this color by numbers activity

1	Quaternary - 2 million years ago (mya) to present
2	Tertiary/Cretaceous - 65 million to 2 mya
3	Pennsylvanian - 310 million to 280 mya
4	Mississippian - 345 million to 310 mya
5	Devonian - 405 million to 345 mya
6	Silurian - 425 million to 405mya
7	Ordovician - 450 mya



DID YOU KNOW?

Reptiles, like me, love warm climates. We use the outside temperature to regulate our internal body temperature. We are ***ectothermic***!

The Pennsylvanian period was very warm, making it perfect for the Age of Reptiles.

SHAPING THE LAND WITH WATER

Sycamore trail in Beckley Creek Park and Riparian Ramble trail in Broad Run Park are perfect locations to discover the geological features of Floyds Fork.

Circle the features you find in the photos below!

A ***gravel bar*** is created from ***deposition*** or the dropping of rocks/sediment in one spot.

Meanders are created over time as the water shapes the land.

Cut banks are caused by fast moving water that will "cut" the bank away.

Roots hold the ground in place and limit the effects of ***erosion***.

Flooding leaves behind natural and human ***debris***; usually found in piles.

NO LEGS, NO EYELIDS, NO PROBLEM

The Parklands is filled with so many amazing creatures that it is hard to keep track of them all. One slithery friend in particular can sometimes get a bad reputation. This fear may be caused by the unknown feeling of whether or not a snake is venomous. ***Venom*** is a toxic fluid that must enter the body through a bite or sting. Luckily for us, there are only four venomous snakes in Kentucky.

How about we take a closer look at these reptilian wonders and learn how to separate the details between snake species?

COPPERHEAD

Habitat: Wooded, high elevation areas throughout Kentucky are most common. Copperhead snakes HAVE NOT been spotted in The Parklands!

Appearance: Distinct light brown to dark copper red colorization that appears in hourglass shapes. They have arrow-shaped heads with visible nostril pits that detects heat and cat-like slits in their eyes.

COTTONMOUTH OR WATER MOCCASIN

Habitat: Marshy wetlands of Western Kentucky. Cottonmounts HAVE NOT been spotted in The Parklands!

Appearance: Normally have a dark colorization and are considered heavy-bodied or large.

Behavior: When approached they will open their mouths wide, exposing the white gums that give them their name. They vibrate their tails to scare away predators.

Mistaken Identity

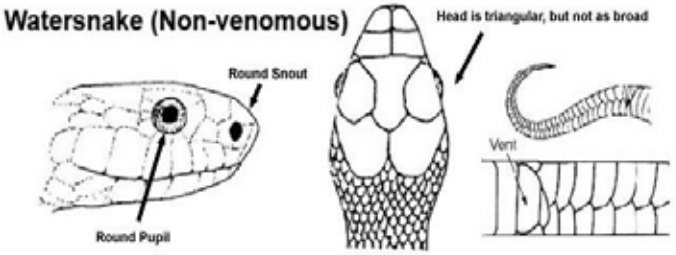
NORTHERN WATER SNAKE

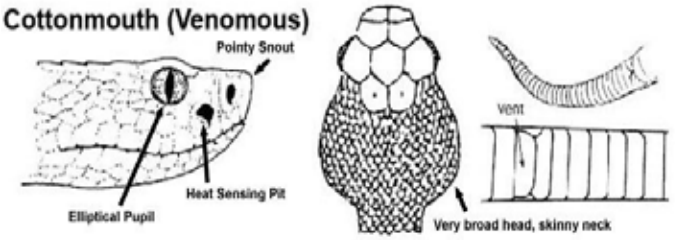
Habitat: Streams, creeks and ponds. COMMONLY FOUND IN THE PARKLANDS!

Appearance: Reddish, brownish, or light gray with dark cross bands—often mistaken for a Copperheads' hourglass pattern. Their tendency to grow large and stay close to water leads people to think they are Cottonmouths. Unlike Cottonmouths, this snake is more likely to flee when approached, making them a harmless friend of nature.

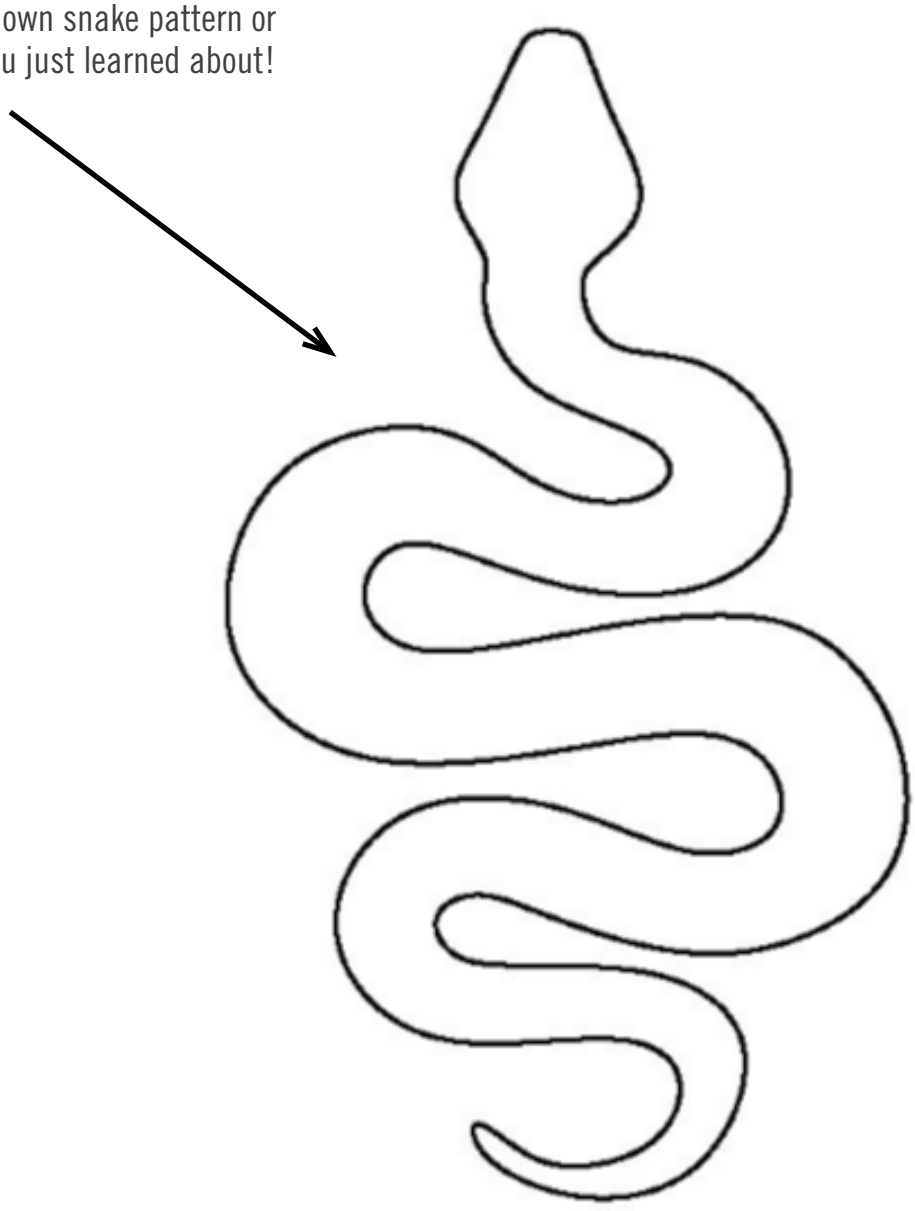
NO LEGS, NO EYELIDS, NO PROBLEM

Snakes play a critical role as a mid-level predator, eating smaller animals on the food chain and providing energy to larger predators as well. Even having snakes live near your garden, barn, or garage can lead to a great symbiotic relationship (helping each other). It is important for us to be able to identify which snakes are venomous and which are non-venomous. Learning this skill helps keep both us and the snakes safe.





Create your own snake pattern or draw one you just learned about!



WHO AM I?

Can you solve the riddles? Write the name of the animal to solve the riddle.

I am a ***mammal***.
I live near freshwater.
I have webbed feet and a flat tail to help me swim.
I build dams out of mud and sticks.
I am a _____

Black Bear

I am an ***insect***.
I undergo a complete ***metamorphosis*** in my lifetime.
My young live in water.
I eat up to 5,000 mosquitoes a day.
I am a _____

White-tailed Deer

I am an ***herbivore***.
I am usually seen grazing in fields at dawn and dusk.
Only the males grow antlers, which they lose and regrow every year.
I am a _____

Coyote

I am an ***invertebrate***.
I can be found under rocks in Floyds Fork.
I can ***regenerate*** my claws if they fall off or get injured.
I am a _____

Crayfish

I am an ***omnivore***.
I do not live in The Parklands, but you can find me in the dense forested areas of Kentucky and surrounding states.
When in danger or hunting prey, I can run up to 30 mph for a very short distance.
I am a _____

Beaver

I am an omnivore.
You can hear my friends and me howling at night.
I live in underground dens or hollow trees.
I can live in almost any state.
I am a _____

Dragonfly

HABITAT HUNT

The Parklands is home to a variety of animals and ***habitats*** - a home for an animal, plant or other organism.

The three main habitats found at the Parklands are: ***Riparian*** (stream or pond), ***Forest***, and ***Meadow***.

Naturalists use their senses to make written and drawn observations about the things they study. Become a naturalist for the day, and seek out habitats at The Parklands, asking the following questions:

What do I hear? **What do I see?** **What do I smell?**

Trails to Explore Habitat:

- **Meadow:** Black Willow trail in Beckley Creek Park or Prairie Preserve trail in Pope Lick Park
- **Forest:** Wild Hyacinth in Turkey Run Park
- **Riparian:** Sycamore trail in Beckley Creek Park, Boone Bottoms in Turkey Run Park or Riparian Ramble in Broad Run Park

Visit a meadow in The Parklands, and record your observations.

HABITAT HUNT

Explore the forest in The Parklands, and record your observations.

Walk along the Riparian areas of The Parklands, and record your observations.

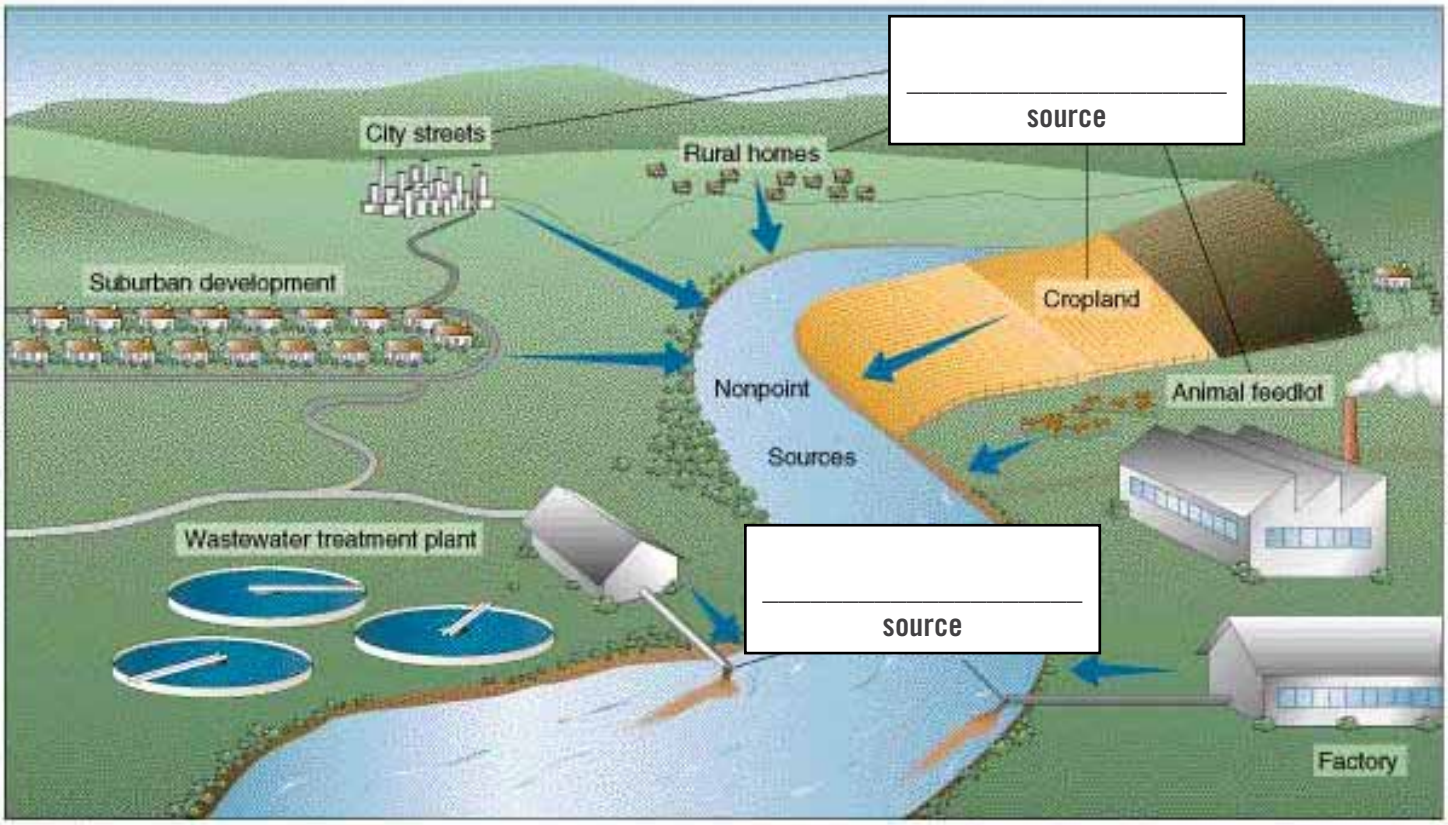
TAKE CARE OF YOUR WATERSHED

A ***watershed*** is all of the land that drains into the same location or body of water. Watersheds vary in size and shape depending on the contour of the land. All of the activities that take place within your watershed eventually affect the oceans. Floyds Fork is a 62 mile creek that is encompassed by a 285-square-mile watershed covering 180,000 acres. The headwaters of the creek begin in Henry County and continue through Oldham, Shelby, Jefferson, Spencer and Bullitt counties. Floyds Fork ends at the Salt River in Bullitt County and eventually flows into the Ohio River, which flows into the Mississippi River and all the way down to the Gulf of Mexico.

What we do in one section of the watershed has an effect on all of the water, land and animals within the watershed and beyond. The land-use around the watershed has a direct effect on water quality. The two major sources of pollution are agriculture and land development. Some pollutants are easy to identify and track back to a direct source, such as a pipe or other structure – this is called ***point source pollution***. ***Nonpoint source pollutants*** come from many different sources and are usually classified as runoff. Both point and nonpoint source pollution lead to poor water quality in our streams, which eventually contributes to an unhealthy ocean.

Let's look at the diagram below to better understand watersheds and the importance of good ***land management practices*** in a watershed.

Label the following as point source or nonpoint source pollution.



WILD ABOUT WETLANDS

Wetlands are exactly that–wet lands–that contain standing water on the ground for at least part of the year. Wetlands are divided into types based on their location, the kinds of plants that grow in them and the soil composition. The four basic types of wetlands are ***marsh, swamp, bog and fen***. Although wetlands come in different types and have many names, they all fill a critical role in providing homes, food and safe breeding grounds to a number of species.

Wetlands have many important roles.

1. Suspended solids–dirt, sediment and other particles–floating in the water can smother fish eggs, clog fish gills and reduce the amount of sunlight reaching submerged plants. Plants in the wetland help filter suspended solids out of water, so when the water eventually flows out of the wetland, it is much cleaner.

2. Wetlands act as large, shallow basins where flood water can spread out, thereby reducing flood damage.

3. Wetlands can help prevent droughts in some areas by storing water.

4. Acting like a sponge, wetlands are able to absorb excess water and hold onto it for a while. Eventually, this water will slowly seep into the ground and help replenish groundwater supplies.

5. Wetlands are vital habitats to plants and animals. They provide food, shelter, and protection from ***predators***. Many species use wetlands for breeding, nesting, nursery sites and ***migratory*** stopovers.

6. Wetlands provide people with a source of livelihood, recreation and sport.

WETLAND METAPHORS

Metaphors are a way to compare unrelated items. For example, look at the use of "snow" and "blanket" in the following sentence.

The snow is a white blanket.

Below are pictures of items seemingly unrelated to wetlands. Can you figure out how these items compare to a wetland? In other words, think about what each item does. Then compare that item's function to how a wetland might function in the same way.

OBJECT	METAPHOR
 Sponge	*Example: Wetlands act as giant sponges by absorbing heavy rainfall and releasing water very slowly. This action helps to prevent flooding.*
 Canoe	
 House	
 Baby Bottle	
 Coffee Filter	
 Soap	
 Bed	
 Canteen	

TOUR THE WELCOME CENTER

With a parent, read the panel displays in the PNC Achievement Center for Education and Interpretation in Beckley Creek Park to find the answers.

The _____ is a native of the area and lives in the deciduous forest of The Parklands from March through August. It winters in Mexico, Central America and Panama.

Sandhill Cranes only stop in The Parklands during their _____.

Kentucky Glade Cress only occurs on the flat _____ of Jefferson and Bullitt Counties.

Mayapple seeds are over four times more likely to germinate after passing through the digestive system of a _____ than when they are left to germinate alone.

_____ _____ _____ vision shaped the future of Louisville's landscape. The design of The Parklands builds upon this city shaping model.

Artifacts along Floyds Fork reveal secrets about ancient culture. Paleoindians hunted megafauna across Kentucky 13,000 years ago. About 1,000 years ago people of the Fort Ancient culture settled in the region to _____,_____, and _____.

Kentucky geology around Floyds Fork is responsible for the many waterfalls throughout the nearly 4,000 acre park. The tributaries are lined with layers of erosion-resistant limestone on top of more soluble, dolomite shale, together known as the _____ _____.

Paddling down Floyds Fork, you might be surprised to see stacked stone walls lining the stream. As _____ cleared the floodplain for _____, stream banks became extremely vulnerable to erosion. Without tree roots to stabilize banks, farmers turned to stone walls.

Two stream habitats work in harmony in Floyds Fork. _____ are fast-flowing, shallow sections that are well oxygenated. _____ are slow-flowing, deep water sections good for fish, such as gar, carp, and catfish.

William F. Miles sold his farm to _____ to build a sewage treatment plant.

Fossils are common along Floyds Fork. During the _____ period Kentucky was a shallow tropical sea.

TOUR THE WELCOME CENTER

Floyds Fork has over 20 species of freshwater mussels. Mussels absorb any _____. Therefore, a healthy mussel population indicates clean water.

The white giants of Floyds Fork are _____ trees.

_____ of Floyds Fork is natural and healthy. Plants and animals benefit from the reorganization of the landscape.

Floyds Fork has a 284 square mile _____ of mostly rural land. It is part of the Salt River Basin, which drains into the Salt River and eventually into the Ohio River.

One tree, multiple trunks. _____ trees have two, three or more trunks.

The Parklands is home to over 450 species of plants, 25 different species of reptiles and amphibians, 40 species of fish, 20 species of freshwater mussels, endangered gray and Indiana bats, 19 species of mammals and at least 138 species of birds.

_____ trees are clues that the area was once an open field. They have wide spreading branches and are larger than trees around it.

Mastodons, mammoths, and giant ground sloths from 12,000 years ago were drawn to the protein rich fruits of the _____ _____ tree, which can still be found in the park today. This tree developed a thick coating of vicious thorns to defend itself. These thorns persist as a reminder of this landscapes ancient history.

MEET A RANGER

Have you ever wondered what it takes to be a Ranger? Have you ever thought about becoming a Ranger yourself?

To find out more about The Parklands and what it takes to be a Ranger, visit the PNC Achievement Center in Beckley Creek Park to interview one of our Interpretive Rangers!

Here are a few questions to get you started:

1. How long have you been an Interpretive Ranger?

2. Why did you decide to become a Ranger?

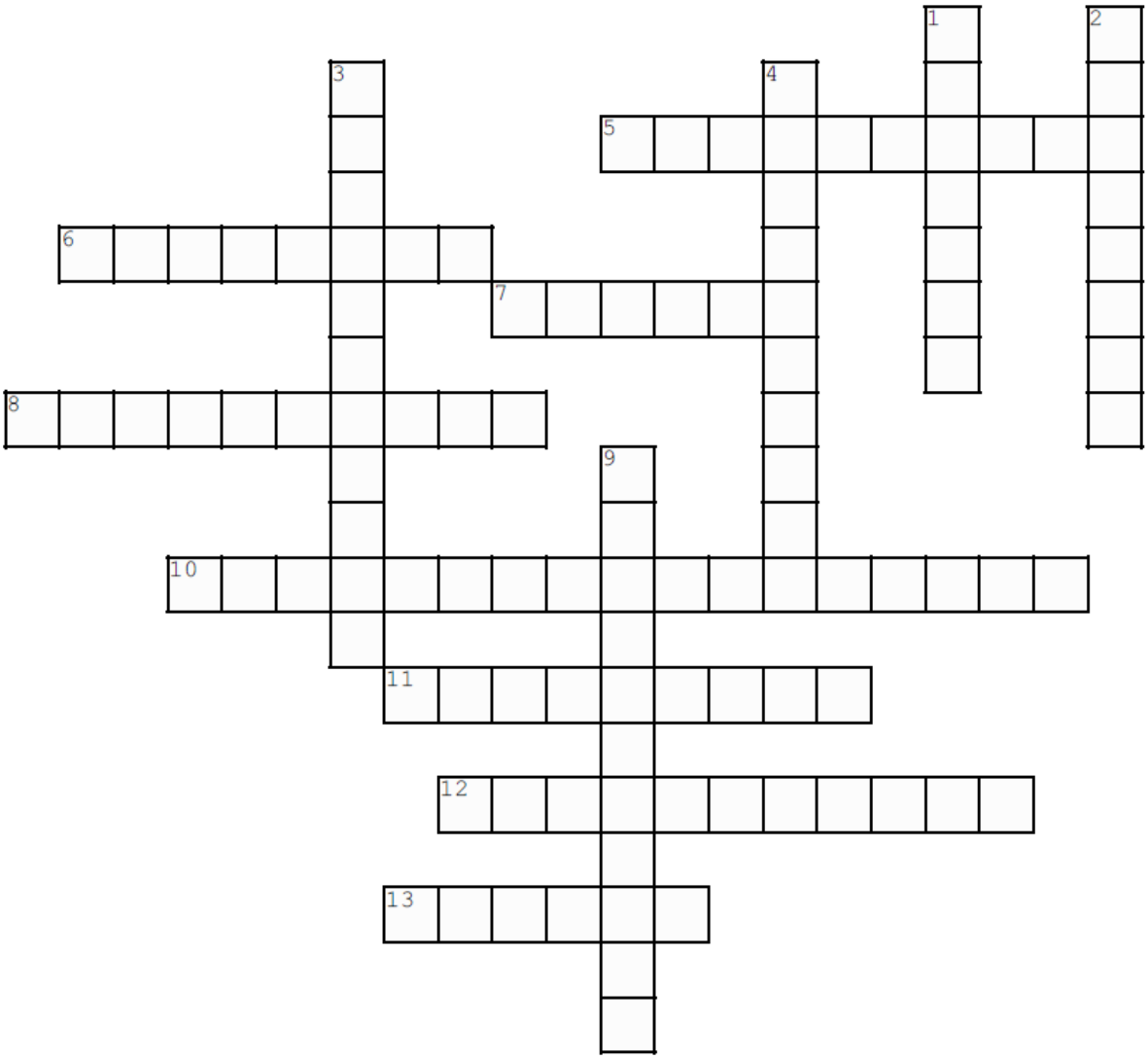
3. Can you describe a typical day?

4. What is the coolest thing you've seen in the park?

5. Do you have a favorite plant/animal?

TEST YOUR KNOWLEDGE

Test out what you have learned so far by completing the crossword puzzle below.



Across

5. Fossils found in Floyds Fork are from the _____ period.
6. They're also known as crawfish, crawdads, or freshwater lobster.
7. _____ Fork is home to over 40 species of fish.
8. The Frontier Surveyor whom Floyds Fork was named after in 1774.
10. Dragonflies and Damselflies start their life cycle in water and are known as a _____.
11. The Tulip Poplar is _____State Tree.
12. _____ are Kentucky's State Fossil.
13. Early American history records many instances where_____ lived in hollow Sycamore trees until they built a cabin.

Down

1. The Parklands has 4 parks: _____ Creek, Pope Lick, Turkey Run and Broad Run.
2. There are four _____ in Kentucky: Timber Rattlesnake, Pygmy Rattlesnake, Cottonmouth and Copperhead.
3. This 4,000 acre park was once used for _____.
4. The _____ loop is a 100 mile paved path. The Parklands has about 20 miles in the park.
9. Animals that are active at dawn and dusk are _____.

JOURNAL

Use this space to write about your day at The Parklands. Which area(s) of the park did you visit? What did you see and hear? What do you remember most about your visit? **BE CREATIVE** - you can record your experience through a poem, a drawing, a song or even a short story!

Don't forget to share your story with family, friends and The Parklands Rangers!

STAY INVOLVED AT THE PARKLANDS!

Attend a Ranger led program and earn turtle points!

JUNIOR EXPLORER

Do you love exploring the outdoors? Dive deeper into discovering science and nature by becoming a Junior Explorer! This program is perfect for kids ages 5-12, teaching science and an appreciation for the natural world, while encouraging kids to get outdoors and active!

To participate in the program, kids print out the Junior Explorer guidebook to complete at their own pace. Once completed, kids can take their guidebook to the PNC Achievement Center for Education & Interpretation in Beckley Creek Park where a Parklands Interpretive Ranger will check their answers, swear them in as a Parklands Explorer and provide them with a special Junior Explorer pin. Once sworn in, Junior Explorers are invited to join educational adventures in the Outdoor Classroom!

Junior Explorers meet on the first and third Saturdays of the month at the historic Ben Stout House in Turkey Run Park. The program is FREE to Members (but please RSVP) and $5 for non-members (children and adults). Register at theparklands.org/events.

WEDNESDAY WONDERS

Wednesday Wonders are interactive programs designed to spark the curiosity of young children. Each week, we'll explore a new science wonder with a story, craft, hike or related science experiment. This program is best suited for early learners (families with children under the age of 7).

Wednesday Wonders is offered at two separate times and locations each week. Weekly activities are FREE to Members (but please RSVP) and $5 for non-members (children and adults). Register at theparklands.org/events.

CAMPS

The Parklands offers Spring Break and Winter Break camps, as well as full-day, week-long summer camps for children in grades K through 6. Camps at The Parklands offer exciting, enriching, discovery-based field experiences that allow children to touch, see and learn about the world around them. Children participate in hands-on science investigations in the natural setting of The Parklands and through the use of state-of-the-art classrooms at the PNC Achievement Center for Education and Interpretation. Programs offer a balanced day of in-classroom learning and outdoor field experiences. Learn more at theparklands.org/camps.

Parklands Members receive a discounted price on our camps and family programs!
Visit theparklands.org/Member to become a Parklands Member today!

CERTIFICATE OF ACHIEVEMENT

PARKLANDS INTERPRETIVE RANGERS CERTIFY THAT

_____

Has successfully completed the requirements for the
JUNIOR EXPLORER PROGRAM
at The Parklands of Floyds Fork!

As a Junior Explorer, I will help to serve as a steward to preserve The Parklands of Floyds Fork by continuing to explore and share my knowledge with others.

_____ _____

Interpretive Ranger Junior Explorer

GLOSSARY

Aquatic – lives in water

Bog – a type of wetland with very acidic waters dominated by sedges and shrubs

Brachiopod – I used a fleshy appendage to anchor myself to the sea floor 450 million years ago. I was a filter feeder and gathered microscopic organisms from the sea water with a tube-like structure with hairs that is protected by my two shells.

Bryozoan - I was a filter feeder with flower like tentacles that captureed food floating by in the water 450 million years ago. I was made up of tiny animals that build homes for themselves, creating a branching shell.

Camouflage – blending into the surroundings to hide or hunt.

Carnivore – an animal that gets its energy from eating other animals (meat eater)

Cephalopod - My kind still exist today, about 800 species, but they have advanced over the years. All 17,000 members of these ancient fossils were squid-like, with tentacles, but had straight external shells.

Colonial Coral - Their appearance is similar to a honeycomb. They vary in shape, from flat to conical to spherical.

Consumer – organism that receives energy from consuming other organisms in a food web

Crepuscular – animals that are active at dawn (sunrise) and dusk (sunset)

Crinoid - They are some of the oldest fossils on the planet. These organisms are still alive today, but they live in deeper waters. These fossils are commonly called sea lilies.

Cut Bank - located on the outside of a stream bend, known as a meander; cut banks are formed by the erosion of soil as water collides with the land

Decomposer – an organism that breaks down/eats decaying plants and animals

Debris – loose material consisting of dirt, rocks, plant material and sometimes man made materials

Deposition – dropping sediment and other debris into one area, Example: gravel bar

Devonian – 405 to 345 million years ago; many fish during this time and also marks the arrival of amphibians

Diurnal – animals active during the day

Ecosystem – a community of living and nonliving organisms interacting together.

Ectotherm – cold blooded animal; body temperature is regulated by external sources in the environment, Example: Turtle warms its body by basking in the sun

Endotherm – warm blooded; maintain a constant body temperature without the influence of external sources

Erosion – the movement of sediment and other materials from one location to another by wind or water

Fen – a type of wetland that is characterized by its water chemistry; typically dominated by grasses and sedges

Flooding – to cover an area with water

Food Web – represents feeding relationships in an ecosystem

GLOSSARY

Forest – a habitat classified by types of vegetation present, mainly trees

Fossil – preserved hard parts of a specimen that give us evidence of past life

Geologic layers – one of a number of layers, levels, or divisions in an organized system

Gravel Bar – an elevated area of sediment in a body of water

Haiku – a traditional poem style that usually focuses its topics on the natural world

Herbivore – an animal that feeds on plants

Hibernation – time of the year when animal's go into a prolonged sleep causing their metabolism and heart rate to slow down

Horn Coral– The outside of these fossils have a wrinkled appearance. They grow in a long cone shape like a bull's horn. They had many tentacles, in a flower like appearance, sticking out to gather food.

Ice Age – a period of colder global temperatures

Insect – small invertebrate animal

Invertebrate – lack an internal backbone, but have a hard external skeleton

Land Management Practices – describes the way that land is managed

Leave No Trace – a set of principles to lead us in our outdoor exploration

Macroinvertebrate – organisms without backbones, which are visible to the eye without the aid of a microscope

Mammal – a warm blooded, vertebrate animal with hair/fur that produces milk for its young

Marsh – a type of wetland that is characterized by grasses and cattails

Meadow – a habitat that consists of primarily grasses and flowers

Meander – a bend in a body of water

Metamorphosis – to undergo a change; to transform

Mississippian – 345 million to 310 million years ago; time period when there was an increase in amphibian population

Nocturnal – animals that are active at night

Nonpoint source pollution – type of pollution in which the source of pollution is unknown; usually caused by runoff from roads and agricultural fields

Offspring - an animals young

Omnivore – animals that get energy from eating plants and animals

Ordovician – 450 million years ago; time period when the area north of the tropics was ocean

Pennsylvanian - 310 to 280 million years ago; time period when there were warm climates, swampy land areas; the age of insects and reptiles

GLOSSARY

Point-source pollution – type of pollution in which you can directly track where the pollution is coming from; Example: waste coming out of a pipe

Poison Hemlock - a poisonous plant that grows well in wet, shady areas near or along a stream

Poison Ivy – a plant that secretes oil on its leaves; when skin comes into contact with the plant oil, a rash may appear

Predator/Prey Relationship – relationship between two animals in which one consumes the other for energy; Example: coyote and a rabbit - the coyote (predator) eats the prey (rabbit)

Producers – organisms that make their own food; Example: plants

Quaternary – present period of earth history; began about 2 million years ago

Regenerate – when an organism re-grows a damaged part of their body

Riparian – a habitat situated next to a stream, creek or river

Silurian – 425 to 405 million years ago, marks the start of air-breathing animals and plants on land

Stinging Nettle – a plant that grows well in riparian areas; the stem has white "hairs" that can cause irritations when coming into contact with skin

Swamp – a wetland that is forested

Symbiotic Relationship – a relationship where two living things help each other survive

Territory – an area of land where someone or something lives

Tertiary – 65 million to 2 million years ago; time period when there was an increase of mammals

Venom – Poisonous substances some animals inject into other animals for defense or hunting

Vertebrate - animals with a backbone and internal skeleton. Example: Humans

Watershed – an area of land where all the water that falls into it and drains off of it goes to a common exit

Wetlands – land that has a wet spongy soil and is covered by water most of the year

PHOTO SOURCES

Ted Wathan/Quadrant
Bob Hower/Quadrant
John Nation
Olivia Kaiser/The Parklands
National Association for Olmsted Parks
http://www.pdza.org/beaver/
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http://www.jointheunstoppables.com/wp-content/uploads/2014/06/slug-575x193.jpg
Deer - http://www.pbase.com/image/79707359
https://www.etsy.com/listing/79974125/possum-jaws-real-bone-teeth-taxidermy
http://www.pugetsound.edu/files/resources/6219_Coyote_sideangleangle2large.JPG
http://www.virginiaherpetologicalsociety.com/reptiles/snakes/northern-copperhead/northern_copperhead.php
https://s-media-cache-ak0.pinimg.com/564x/43/f6/a7/43f6a7762e0041c6ff5023b654dc80a6.jpg
http://bosque.agrilife.org/files/2015/07/snake-diagram.jpg
https://s-media-cache-ak0.pinimg.com/236x/6e/6d/70/6e6d70f6ca59284cb668ce6b2dfdc25b.jpg
https://d2gne97vdumgn3.cloudfront.net/api/file/INIw3vjKRUaIY93QVIkK

JUNIOR EXPLORER 2018 ADVENTURE SCHEDULE

Junior Explorers are invited to join Parklands Rangers twice a month for educational adventures! Explore The Parklands, test out what you learned from the guidebook, hang out with Ranger Russell and meet new friends.

Adventures are **10 a.m. - 12 p.m.** on the first and third Saturday of every month at the historic Ben Stout House in Turkey Run Park. Adventures are FREE to Parklands Members (but please RSVP) and $5 for non-members (children and adults). Register at theparklands.org/Events. Become a Member and learn more about our donor-supported park at theparklands.org/Member.

JANUARY 6 – Whose scat is that?
JANUARY 20 – Ordovician Period Explorers

FEBRUARY 3 – Hungry Animals
FEBRUARY 17 – Whose beak is that?

MARCH 3 – Mimicry Matters
MARCH 17 – Amphibian Adventure

APRIL 7 – Protecting Natural Areas
APRIL 21 – Buds are poppin'.

MAY 5 – The Importance of Trails
MAY 19 – Nature's Engineers

JUNE 2 – Crawfish, Crayfish, Crawdaddy?
JUNE 16 – Symbiosis Scenarios

JULY 7 – Reptile Seekers
JULY 21 – Macroinvertebrate Mayhem

AUGUST 4 – Let's track em'.
AUGUST 18 – Carbon Catchers

SEPTEMBER 1 – Weather Chaser
SEPTEMBER 15 – Leaf Litter Critters

OCTOBER 6 – Seed Dispersal Detectives
OCTOBER 20 – Plant Adaptations

NOVEMBER 3 – You don't belong in this habitat.
NOVEMBER 17 – Winter Tree ID

DECEMBER 1 – Grossology
DECEMBER 15 – Frosty Days

Topics are subject to change. In the event of a cancellation, registrants will be notified via e-mail.

JUNIOR EXPLORER E-NEWSLETTER

Want to receive extra fun activities and the latest park udpates from Parklands Interpretive Rangers? Have your parent/guardian complete the information below and turn in to a Parklands Interpretive Ranger at the PNC Acheivement Center for Education & Interpretation in Beckley Creek Park!

Parent/Guardian Full Name: _____

Parent/Guardian E-mail:_____

Junior Explorer Full Name:_____ Junior Explorer Age: _____

Favorite Activity from Junior Explorer Guidebook: _____

Least Favorite Activity from Junior Explorer Guidebook: _____