

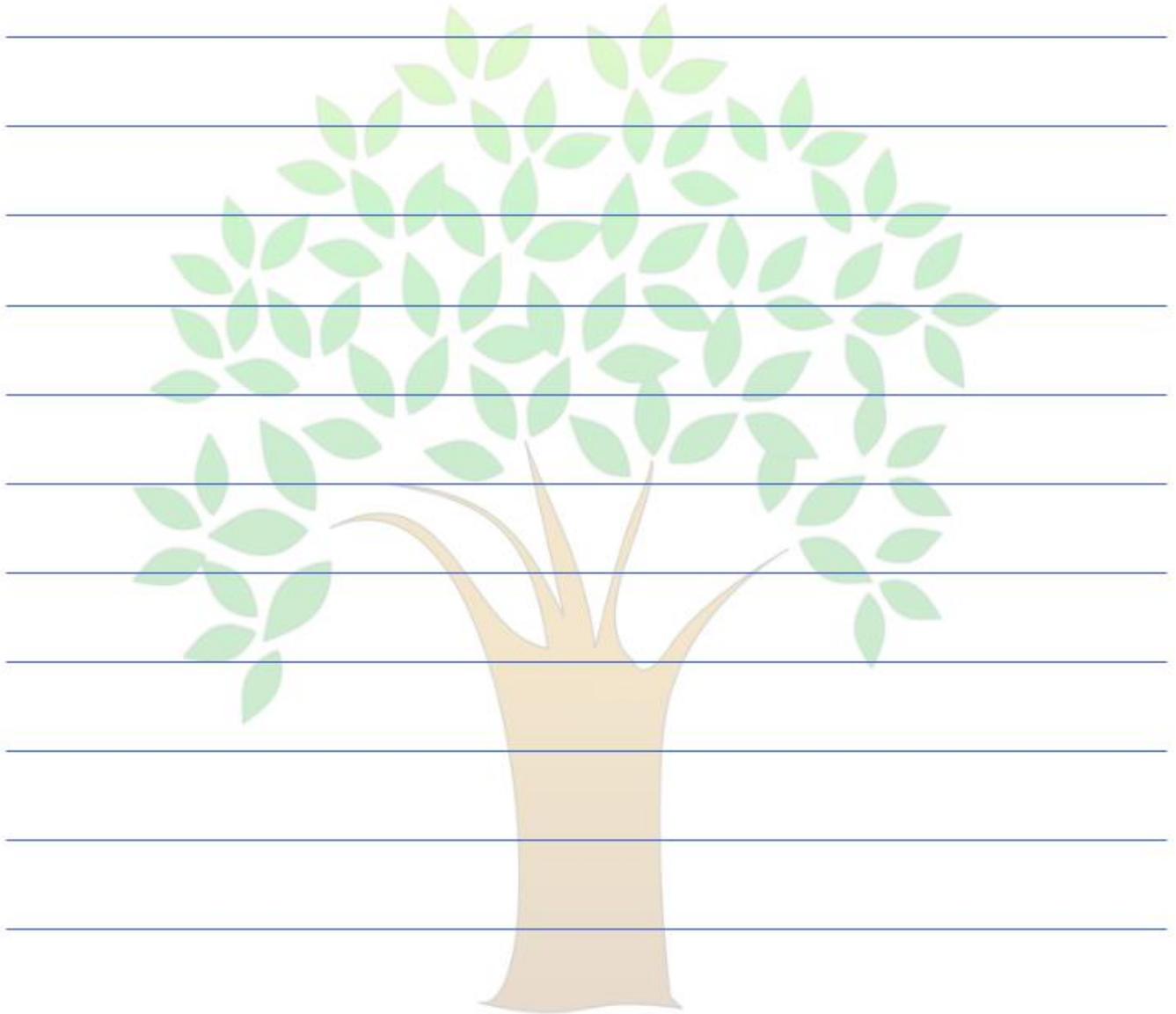


Name _____

Outdoor Theme _____

Journal about your experience

What did you do outside today? What discoveries did you make about nature?



Franklin Park Conservatory
and Botanical Gardens

Use the space below to draw what you found in nature or what you created using materials found in nature.

You may choose to create your nature project in the space below.

(If you have access to a camera, take a picture of your project and glue in the space.)



Franklin Park Conservatory
and Botanical Gardens



LEARNING ABOUT HABITATS AT THE CONSERVATORY

Ohio has four major habitats: forests, prairies, wetlands, and the great lakes. There are smaller habitats within these four: streams, caves, thickets, tree cavity, and underground.

You can find fun things to do at the Conservatory to learn more about habitats in the Scotts Miracle-Gro Foundation Childrens Garden.

Two outstanding tree-top roosts await: Mulberry Perch, at ten feet above the ground, and Hammock Lounge, at thirteen feet above the ground.

These twin destinations are the highest points along the Children's Garden journey. Artistically-designed and laser-cut metal railing panels populate the Canopy Walk, bringing the story of Ohio's native animals and plants, and its ever-changing seasons to the forefront.



OHIO FOREST HABITAT

There are many different habitats found around the world, we are going to focus on forest habitats in Ohio. Forests have different layers: forest floor, shrub layer, understory layer, and the canopy layer.



FOREST LAYERS	WHAT WILL YOU FIND?
THE FOREST FLOOR	ferns, wildflowers, and tree seedlings
SHRUB LAYER	different types of shrubs
UNDERSTORY	smaller trees like dogwood
CANOPY	where all the tallest trees are found

MAKE AN OHIO FOREST LAYERS DIORAMA

Materials needed:

- 🌿 shoebox or tissue box
- 🌿 twigs / sticks
- 🌿 grass/moss
- 🌿 ferns
- 🌿 rocks
- 🌿 crayons/markers
- 🌿 scissors
- 🌿 glue or tape



Use your collected materials to recreate the layers of the forest inside the shoe box.

For more information on trees in Ohio and Ohio Forests visit:
forestry.ohiodnr.gov.

TREE & THICKET HABITAT

Let's talk about Ohio's State bird, the Northern Cardinal. What type of habitat do you think it would live in? Do you think it would nest on the ground or in a tree? What food would it eat?

Northern Cardinals live near woodland edges, thickets, and suburban gardens in these areas they look for seeds, insects, and berries to eat. These birds nest in dense shrubs, vines, or low trees. Nests are usually placed about 3'-10' above ground, and sometimes nests can be found higher than that. They make their nest from twigs, weeds, bark strips, leaves, and line it with grass or hair.



Now let's go on a journey!

- 🌿 Explore the outdoors, this could be your yard, neighborhood, or nearby park and see if you can find a bird nest or bird habitat.
- 🌿 Once you have found a nest or habitat, observe it for 2 minutes
- 🌿 Now take a picture or draw and describe what you observed in your journal
- 🌿 Make sure you use descriptive words: bright red, brown twigs with green leaves

MAKE A BIRDS NEST ACTIVITY

Materials needed:

- 🌿 twigs
- 🌿 leaves
- 🌿 grass
- 🌿 moss
- 🌿 string
- 🌿 pine needles

Questions to ask yourself while constructing a bird nest:

1. How strong is the bird nest?
2. Can the bird nest stay together during a windy day?
3. Will water collect inside the nest or will it drain?
4. Will the bird adults and young be comfortable?

For more information about Northern Cardinals visit:
allaboutbirds.org/guide/Northern_Cardinal

WETLAND & STREAM HABITAT

The term “Ecosystem Engineers” is what comes to mind when I think about our next adventure! Beavers are found throughout North America around freshwater lakes, ponds, rivers, marshes, and swamps.

They build dams out of weaving branches together, cutting down trees with their teeth, and waterproofing the construction with mud. Then they build their lodge or hut next to the dam out of sticks, rocks, and mud.

This construction has an underway way for them to get into the lodge or hut. Beavers eat leaves, roots, and bark from trees, they prefer aspen, willow, poplar, and maple trees and also eat aquatic plants.



BUILD A BEAVER DAM

Materials needed:

- 🌿 soil
- 🌿 water
- 🌿 sticks
- 🌿 rocks
- 🌿 small bucket mix the soil and water (mud)
- 🌿 a plastic container to construct your build



In your yard gather the above materials and then see if you can use these materials to construct a dam or lodge-like beavers do.

Here are some helpful tips:

Mud is used as glue, it helps hold the sticks, rocks, and other materials in place.

Mud also helps with holding water back, it acts as a sealant



Questions to ask yourself while constructing a beaver dam:

1. Would the dam hold back running water?
2. Are there any leaks in the dam?
3. Does the dam hold back water but water runs over the top?
4. What adjustments can be made to make the dam better?

For additional information visit:

ohiodnr.gov

UNDERGROUND HABITAT

Did you know that there are more than 12,000 species of ants all over the world? Also, that ants can lift 20 times their body weight, that means that if a second grader were as strong as an ant they could pick up a car! When ants are out foraging for food they leave a pheromone trail so they know where they have been. Ants use their feet to hear, this is done through vibrations that they feel in the ground. Ants live in colonies and these colonies can be all shapes and sizes. In these colonies there can be a few species of about a dozen ants or the average colony contains thousands of individual ants.



SCIENTIFIC OBSERVATION

Materials needed:

- 🌿 paper/notebook
- 🌿 Pencil
- 🌿 crayons or markers



- 🌿 Go outside and pick a spot where you notice an ant hill, sit and observe the ant hill for about 5-10 mins.
- 🌿 Now, what did you see? What were the ants doing?
- 🌿 Did any of the ants come out of the hill?
- 🌿 As you make observations make sure to write down what you see the ants doing.
- 🌿 The more information you have the easier it will be to create your story about ants.
- 🌿 Lastly, make a story book about the ants that you observed.
- 🌿 Make sure to be as detailed as possible.



If you would like to see an example, go to the link below and watch the short video.

https://www.youtube.com/watch?v=d0_IMmFdu4o

HABITATS ARE EVERYWHERE

A habitat is an environment where an organism or population naturally lives. This environment provides the needs for survival, food, water, shelter, and space. Each species has a niche, the niche is the role the species plays, including what type of food it eats and where it lives. What would be a frog's niche? It would be that a frog eats insects and lives in ponds or in water.



SCAVENGER HUNT

This activity will have you exploring outside in your neighborhood of a nearby park, maybe even your own backyard.

Find the following:

- 🌿 pond or stream
- 🌿 bird nest in a tree
- 🌿 a tree that is at least 2 ft in diameter
- 🌿 an evergreen tree (pine tree)
- 🌿 a rock
- 🌿 a vine
- 🌿 leaves on the ground
- 🌿 grassy area - space without trees or shrubs
- 🌿 decaying log or leaves
- 🌿 hollow log or hole in a tree



Once you have found at least 5 of the 10 items. Then you should pick one and draw it in your journal.



IMAGINATIVE PLAY AT THE CONSERVATORY

Imaginations are free to run wild in the Scotts Miracle-Gro Foundation Children's Garden! The Sunrise Lawn is the perfect place to blow off steam and let kids be kids – a lighthearted invitation for spontaneous family fun.

The Nature Play Zone, beneath the shade of the Mulberry Tree, lets children and their caregivers discover a wonderland of fort building, digging, stump jumps and physical fitness.

Limited only by a child's imagination, playtime here is spontaneous, unscripted and fresh with each new day.



BACKYARD BINOCULAR HUNT

Have you ever used a pair of binoculars? Binoculars are like two telescopes that you hold to both of your eyes at the same time. They magnify things that are far away. Today, we'll make our own fun binoculars to help us take an imaginary binocular hunt. They won't really magnify things, but you can use your own imaginations to bring far away things a little closer!



All you need for a pair of binoculars are your hands!

Just make your hands into circles and put them up to your eyes for your own take everywhere pair! You can also make your own binoculars by using two toilet paper rolls or ask an adult to cut a paper towel roll in half or help you roll up pieces of paper taped into rolls (heavier weight paper is best). Tape, staple, or glue the rolls together in the middle and decorate your binoculars using markers, paint, and other craft supplies (just make sure you can still comfortably hold your binoculars in your hands). Once dried, go outside and pretend to be on an exploration trail.



Even though their binoculars won't make things look closer, it can help focus your sight on cool things while on a backyard exploration.

Can you find real birds, rocks, leaves, and flowers through your binoculars? Make sure you look up high and look down low. Draw a picture of some of the things you've been able to see through your binoculars.



With our special binoculars, we don't have to focus on the things we see in our neighborhood! Can you imagine being in another part of the country or the world on a binocular hunt?

- 🌿 How would you go on an exploration in a jungle?
- 🌿 What do you think you would see?
- 🌿 What if you wanted to climb to the top of a mountain?
- 🌿 How would you climb and what would you see on your way?
- 🌿 What would you need to explore in a desert? On a glacier?
- 🌿 What do you see in these parts of the world?

Explore all of these areas and talk about all of the things you've imagined. Write down some of your favorite things you have imagined while exploring or draw a picture of some of the things you've imagined.

ANIMAL WALK WALKS

Take a walk on the wild side and take an Animal Walk walk! Imagine what it would be like to get around like a different kind of animal by taking a walk (or a hop or a crawl) like various animals. You can walk like animals in your neighborhood and like those you've only seen in a book or at the zoo. This is a great activity to do outside, but can also be done indoors in bad weather. Add obstacles like pillows or toys to maneuver around to up the difficulty factor! And don't forget the arm motions and animal sounds!!!



Think and journal about:

- 🌿 Where does the animal live—in your backyard, in the desert, in the tops of trees, in the ice and snow?
- 🌿 How does an animal's habitat (where it lives) change how they walk? What if, instead of waddling, a penguin ran over the ice like a cheetah? Would he fall down?
- 🌿 Which walks are easiest to do and which are hardest?
- 🌿 Which is the silliest?
- 🌿 Which animal would you like to be?



Here are some ideas to get you started, but think of animal walks you want to try!

- 🌿 Hop like a rabbit (make little jumps around the yard)
- 🌿 Slither like a snake (get down and slide)
- 🌿 Walk like a turtle (walk slowly on all fours and make sure your head is poking out of your shell. Stop and pull your head in like you're tucking into your shell!)
- 🌿 "Fly" like a bird (flap your arms while walking and then...take off! Jump in place and flap your "wings")
- 🌿 "Swim" like a fish (dodge in and out of objects while flapping your "fins")
- 🌿 Kick like a donkey (lift your legs out behind one at a time while you walk)
- 🌿 Crawl like a crab (lay on your back and push yourself up with your hands behind you and try to crawl backwards)
- 🌿 Crawl like an inchworm (make a triangle by standing up tall and bending at the waist to put your hands flat on the ground in front of you—walk your hands forward and back and inch along)
- 🌿 Walk like a bear (crawl on all fours)



TAKE A TINY HIKE!

Can you imagine what the world would look like if you were a bug? Can you make-believe what it would be like to be outside and be the size of a tiny fairy or even one of your action figure toys? The world would look very different if you were this small. Use your imagination to think about how things would look and create a miniature world a tiny friend could explore!



VISIT A TINY WORLD

Explore outside to collect some of the following items:

- 🌿 leaves
- 🌿 sticks
- 🌿 pebbles
- 🌿 stones
- 🌿 flowers
- 🌿 grass
- 🌿 pinecones
- 🌿 seeds

The top of an acorn could be a cute hat! A leaf could be a roof for a house or a cape for a tiny wizard, faery, or superhero! Can you make something that looks like tiny furniture—a chair or a table? A rug for the floor? What fun things can you imagine and create?



Write about what the world looks like to your tiny friend. Feel free to include a drawing of some of the creations you made with a picture of your tiny friend beside it!!

Bonus Activity:

You can also make your own fairy or wizard potion—pretend that it is like an invitation for a fairy or wizard to play with the new tiny creations you've made! All you need to create a potion is a jar, some water, and some imagination!



1. Add some water to a clear jar. You can choose to add some food coloring (just a drop). Experiment with combining colors!
2. Collect nature items to add to your fairy or wizard potion—blades of grass, tiny twigs, pebbles, flowers and flower petals.
3. Find your magic wand! While gathering your nature items for your potion, find a small stick. Hold it in your hand and...voila!
4. Gently stir your potion with your magic wand. Tighten the lid back on your jar and place it outside. Look at the world through your jar to see how the water makes things look different!

STUCK WITH A STICK

When is a stick more than just a stick? When you use your imagination!

Animals of all kinds use sticks in many different ways. Gorillas use sticks to help them walk or to see how deep water is before they get in! Elephants use branches to help swat away pesky flies. Check out the book *A Stick Until...* by Constance Anderson to see more ways that animals use sticks to help them do things.



You can do all kinds of fun things using just a stick, too! Be sure to be careful and not run or poke yourself or anyone else with your sticks, though!

Did you know you can take an entire camping trip using only your imagination and a stick or two? Go on a pretend camping trip and find all the things you can do with just a simple stick! It's a great way to get out into nature and enjoy a special getaway without going very far!

Find a decent sized stick (or several sticks) and imagine the different tools it could be on a camping trip.

Here are some ideas to get you started:

- 🌿 Build a pretend campfire by placing some sticks in a pile to form a little triangle. Color some orange, red, and yellow “flames” and place in your sticks to light your fire.
- 🌿 Use a stick to mark your tent site or ask a grown up for a towel or old sheet you can put over a couple of sticks to create a small shelter
- 🌿 Make your own fishing pole. Use just a stick on its own or you can attach string and make fish to catch out of leaves!
- 🌿 What is a camping trip without hot dogs and s'mores? Use a stick to pretend to roast hot dogs and marshmallows over your pretend campfire.
- 🌿 Pretend a smaller stick is a fork or a spoon to help you stir and then eat your yummy campfire food.



How many more ways can you come up with to use a simple stick as a great toy? Can it be a microphone? A flute? How about some drumsticks or a guitar? You could even use it as a conductor's baton and direct your own imaginary band!

Can you imagine 12 more ways to use a stick for fun?

What are some other nature items that could have more uses? Draw or write in your journal about ways you can think to use sticks, rocks, leaves, and even the dirt beneath your feet!

NATURE KITCHEN

Using your imagination doesn't mean you can't get a little bit (or a lot) dirty! Become a master chef in your very own Nature Kitchen! Though you can't actually eat your creations, it's fun to imagine yourself as a chef. You can even act like you have your own cooking show and talk your audience through each step. Just be sure to give your cooking show a name and write it in your journal.



MUD PIES & MUD CUPCAKES

1. Ask an adult to help you dig up some soil and put it in a container. Add some water and use a stick as a spoon to mix it up to make mud.
2. The easiest way to make a mud pie is to just grab some mud and pat in between your hands. Pretend you are on a cooking show and explain to your audience what you're doing as you are making your pies!
3. If your mud is too wet to make into a pie, think about how you could make it thicker? You can add more soil to your "batter", you can even add some grass or torn up leaves.
4. Ask a grown up if you can use a real pie tin or plate to "serve" your pies.
5. If you have cupcake cups (silicone ones work the best), ask an adult if you can use them to make mud cupcakes. Add some mud to the cupcake cups. Now it's time to really use your imagination because no cupcake is complete without the "icing" on top! Gather some nature supplies from the yard to decorate your cupcakes!
6. If it's a hot, sunny day, you can leave your mud pies or cupcakes out in the sun to "bake." Make sure you write down what you see when you first make the cupcakes—what do they look like and how does the mud feel and smell?
7. Another fun thing you can "cook" is Mud Soup! Just add more water to your mud pie and mud cupcake batter and stir the mud again. Your soup should have more water than your "batter" so that it looks like soup! Serve in bowls with stick spoons.



What other natural dishes can you think of to make? Leaf stew? Dandelion lemonade? After you get cleaned up, write about your creations in your journal and about other imaginary meals you might want to try to make the next time you open up your nature kitchen!.



LET'S GARDEN AT THE CONSERVATORY

The Let's Garden area in the Scotts Miracle-Gro Foundation Children's Garden connects young visitors to the wonderful world of edible gardening.

Families help with the gardening activity of the day, whether that be planting, weeding, harvesting, or preparing for a garden feast.

Gardening is more than digging in the soil and planting seeds. It involves plant science, botany, math, and observational skills, plus a love of plants.



A SEED'S LIFE

How does a plant start its life? It begins as a seed. Like plants, seeds need the same things to grow – soil to grow in, sunlight to give them warmth, water to drink, and air to live. Before a seed can sprout, it must go through a process called “germination.” Germination is what happens inside the seed. What would that process look like? Let’s grab some supplies from the kitchen and find out!



Materials:

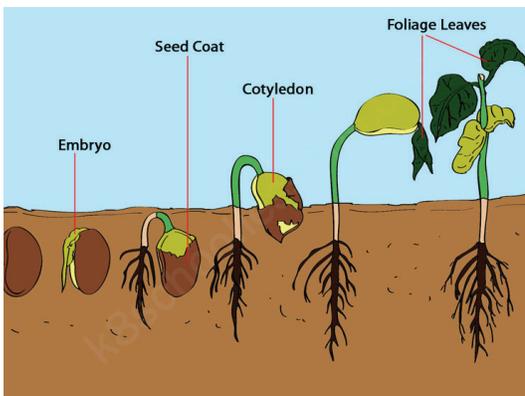
- ☘ dried beans
- ☘ 2 quart-size baggies
- ☘ sharpie marker
- ☘ 4 paper towels
- ☘ water
- ☘ ruler

1. Wet your paper towels and then squeeze out water.
2. Spread two of your paper towels on a table, so they are flat.
3. Place ten bean seeds on each towel.
4. Spread out the seeds evenly - 1-inch apart
5. Cover the seeds with a second paper towel and roll it up.
6. On one baggie, write “Light” and on the other write “Dark.”
7. Place a rolled paper towel in each baggie and place the Light one in a sunny window sill and the other in a dark closet.
8. In 5 days (mark your calendar!), unroll each paper towel and compare your seeds.



What do you see?

- ☘ Do your seeds look bigger? Seeds take in oxygen (air) and water through the seed coat’s micropores (tiny holes) to break open.
- ☘ Use an unfolded the end of a paperclip or your fingernail, break a seed apart to see what is inside. What do you see?
- ☘ Do the seeds that were in the Light look different from those in the Dark?
- ☘ Can you identify the parts of your seed? The embryo is the baby plant; the seed coat is the hard outside shell that protects it; the cotyledon (seed leaf) provides food until the first true leaves emerge, and photosynthesis begins (leaves are a food factory for plants!).



What would seed germination look like in the soil?

<https://www.youtube.com/watch?v=w77zPAtVTul>

LIFE OF A PLANT

All living things grow and change as they progress through their life cycle. A plant's life cycle includes sprouting, developing roots, stems, leaves, and flowers, reproducing (making seed), and eventually dying. While this may sound a little little sad, remember with each seed, life begins again. Let's plant some seeds and watch them grow!



Materials:

- 🌱 plastic berry container
- 🌱 seeds
- 🌱 potting soil
- 🌱 bowl or bucket
- 🌱 measuring cup
- 🌱 water
- 🌱 sharpie maker
- 🌱 plate

1. Moisten 4 cups of potting mix in a bowl or bucket before placing it in containers. Add water to potting soil 1/2 cup at a time till the soil feels damp, but not wet.
2. Use a sharpie marker to write the date and type of seed.
3. Fill the containers 1 inch below the rim with moistened soil.
4. Follow the recommended planting depth on the seed packet.
5. Water seeds gently after planting. Close lid.
6. Place your seeds in a sunny window sill.
7. Check daily to make sure the soil stays evenly moist.
8. Once seeds have germinated and produced their first set of true leaves (cotyledon). Open lid once the seedling starts to touch the lid. How many days did it take for your seeds to germinate?
9. If seedlings are growing too close together, pluck out a few.
10. When seedlings have one to three sets of true leaves and are a couple of inches tall, transplant to a deeper container or your garden.
11. If you planted mesclun lettuce mix, no need to transplant, just cut your greens and have a tasty salad!

For more on the life cycle of a plant, check out the book:
From Seed to Plant - https://www.youtube.com/watch?v=Rb7n_B8kzNY

Try to identify the different phases in the plant life cycle in this beautiful video:
Story of Flowers - <https://www.youtube.com/watch?v=vDpFyHmtOAE&t=145s>

REPURPOSED CONTAINER GARDENING

A container garden makes a great first garden project. All you need is something that can hold soil with small holes in the bottom for excess water to drain. A pair of boots you have outgrown, a kiddie pool you no longer use, or a toy dump truck will do. Look around the house and see what you can find!



Materials:

- ☘ container that holds a minimum of 4- 6 inches of soil
- ☘ a drill or tool to punch holes (adult assistance required)
- ☘ potting soil
- ☘ seeds or young plants



1. Think about where your container will go – in the shade or sun.
2. Pick out your plants. You can start your garden by planting seeds or transplanting seedlings.
3. Choose your container. Drill 5-7, ¼ to ½” holes in the bottom so that that water will run out.
4. Moisten your soil and place it in your container and plant. If plant seeds, add soil to about 1 inch below the rim, then follow the directions listed on the seed packet. If you are planting seedlings, add soil until reaching the size of the seedling pot. For example, if you are planting seedlings currently in a 4-inch-tall pot, add soil until you have about 5 inches left (this leaves an inch of soil below the container). Then take the seedlings out of the pot, place them in the container, and carefully add soil around the roots.
5. Gently water your new garden until water begins to drain from the bottom. Place your containers in a spot to match your plants' sunlight needs.
6. Check on your container garden daily and look for changes and growth. Stick your finger in the soil. Is it wet or dry? If it is dry, then it is time to water your garden!

So many plants to choose from; check out Pre-K Gardens for a great list to get started:

<https://kidsgardening.org/gardening-basics-plants-for-pre-k-gardens/>

GARDEN WARRIORS

Gardeners define a weed as any plant in the wrong place. Weeds compete with our garden plants for light, moisture, and nutrients, so we need to keep them in check. Plants that are very hard to stop once they start growing are invasive weeds – bad guys like thistle and garlic mustard. Good gardeners learn how to identify weeds and know when to pull them out. Are you ready to defend your garden against the invaders? Garden Warriors unite, let's pull those weeds out!



Materials:

- 🌿 gloves
- 🌿 bucket
- 🌿 trowel or weeding tool
- 🌿 weed identification sheet

1. With an adult, identify as many weeds as you can in your garden or backyard.
2. How many different weeds do you have?
3. Remember, we want to keep our Invaders out of the garden. With your adult, come up with the number of weeds you need to pull each day to claim victory.
4. Adults - consider awarding a prize or giving a reward for your Garden Warrior's achievements.

Weeds to watch for:

Crabgrass, Clover, Dandelion, Nutsedge, Plantain, Purslane, Spurge, Wood Sorrel

Weeds and Nature:

Weeds in our garden may be bad; however, in nature, they may be beneficial to wildlife and humans. For example, clover, dandelion, and wood sorrel are food for bees. Many weeds are edible for people and contain the vitamins we need or have healing properties. In this sense, weeds are the good guys!

For a complete guide on weeds in Ohio, check out Ohio State University Weed Guide:

<https://www.oardc.ohio-state.edu/weedguide/>

GARDEN SCAVENGER HUNT

A home garden is not required; investigate your backyard, walk your neighborhood, or head out to the park and see what you can find!



Materials:

- 🌿 pencil
- 🌿 checklist
- 🌿 digital camera

Record what you find on the checklist or use your camera.



Things to Find:

- a spider in a spiderweb
- a flower that has more than five petals
- a heart-shaped rock
- three different bugs with wings
- a seed
- a bird with red or orange feathers
- the biggest leaf



Things to Do:

- a spider in a spiderweb
- smell two different flowers
- touch a leaf that is soft or fuzzy
- feel something rough
- pick a ripe vegetable
- chase a butterfly
- find a stick in a Y shape
- water a plant
- find a shape in a cloud
- find something w/a hole



LEARNING ABOUT NATURE ART AT THE CONSERVATORY

The Nature Art Studio in the Scotts Miracle-Gro Foundation Children's Garden inspires kids to create works of art using natural materials.

Art involving nature goes beyond traditional drawing and painting.

It connects us to plants, animals, and the earth. Furthermore, using the natural elements as our artist's pallet provides us the opportunity to explore the beauty in nature, use scientific observation, and enhance creativity.

So let's head outside and use our imaginations!



Franklin Park Conservatory
and Botanical Gardens

1777 East Broad Street | Columbus, Ohio | fpconservatory.org |   

ROCK & STICK SCULPTURE

How about using natural materials at hand to explore engineering concepts? Making sculptures out of rocks or twigs is all about balance. Simply grab some rocks, sticks, and any treasures you find in your backyard, and see what develops!



- 🌿 Find smooth, flat stones of various sizes.
- 🌿 Simply try stacking them to make sculptures.
- 🌿 Add ramps made from sticks to your sculpture and roll acorns and pebbles down.
- 🌿 Decorate your sculpture with leaves, acorns, flowers, shells, or other natural materials.
- 🌿 Use mud as “glue” or plant vines and plant stems to tie on your sculpture if needed!

NEXT CHALLENGE: STONE STACKING

Up for the next challenge?

Try balancing stones like artist Jonna Jinton:

THE ART OF BALANCING STONES

<https://www.youtube.com/watch?v=UqU19dR0bFE>

SOIL (AKA DIRT) PAINTING

“A rainbow of soil is under our feet; red as a barn and black as a peat.
It’s yellow as lemon and white as the snow; bluish-gray. So many colors below.
Hidden in darkness as thick as the night; The only rainbow that can form without light.”

– A Rainbow of Soil Words by F.D. Hole, 1985



Farmers, horticulturists, and scientists use the word “soil” instead of “dirt.” Soil is made of non-living particles, such as sand and tiny rocks, and living particles like decayed plants and animals.

Dirt is a term we use when we get our hands messy. So in this activity, we will do both – explore soil and get a little dirty; all in good fun!



PAINTING WITH SOIL

- ✿ Find two to three different spots to dig up ½ cup of soil, keep each in a separate container.
- ✿ Place a tablespoon of soil on a plate and slowly add drops of water and mix till it looks like paint. Notice as you make paint from the different spots that you dug up, are the colors the same?
- ✿ Use paintbrushes or your fingers to paint on a piece of paper.
- ✿ For extra fun, add a little food coloring to your soil paints to see what happens!



Curious to learn more?

Check out The Dirt on Dirt | Sid the Science Kid:

<https://cet.pbslearningmedia.org/resource/f6341f76-e155-4320-897f-2efe9a04481c>

NATURE MANDALA

The word Mandala (pronunciation mon- dah- lah) means “circle.” A mandala is a circular structure with radial symmetry, meaning that the design radiates out symmetrically from the center. You can see this shape in nature when you look at tree rings, spider webs, snowflakes, and even our own eyes. Let’s gather what we can find outside to make our own very special mandala!



MAKE A MANDALA

- 🌿 Collect pebbles, seeds, leaves, flowers, and anything else you want for your artwork.
- 🌿 Take one thing or object you collected and place it on the ground.
- 🌿 This object is your center point.
- 🌿 From your center point, arrange your objects around it.
- 🌿 For example, it can be a spiral or lines shooting out like arrows, whatever captures your imagination!



How many animals or plants have a swirl shape? Check out the book *Swirl by Swirl* Spirals in Nature https://www.youtube.com/watch?v=_xwkUvtxobU to find out!

FRACTAL HUNT

Fractal patterns are all around us; you can see them in trees, some flowers, even in things we eat like broccoli and cauliflower. A fractal is a pattern that repeats itself. We call shapes like this “self-similar” because a little piece of the shape looks similar to itself. For example, a small leaf of a fern has the same shape to the entire fern.

Take a walk through your neighborhood to hunt for fractals.



GO ON A HUNT!

- 🌿 Take a notebook and pencil or digital camera and draw or photograph as many fractals as you can find.
- 🌿 Create a work of art from your fractal hunt.
- 🌿 Make a collage out of the images you drew or photographed.
- 🌿 For photos use a free online Collage Maker - <https://www.fotor.com/> or <https://www.befunky.com/features/collage-maker/>



FLOWER POUNDING

Look at your arm. What color do you see? Is it one color or many? Do you have freckles? What you are seeing is pigment. In flowers and leaves, pigment creates the beautiful yellow, purple, red, blue, orange, and green we see.

Let's experiment with pigment in plants and see what nature reveals!



PIGMENT ART

- 🌱 Pick fresh flowers and leaves.
- 🌱 Pull the flowers and petals apart and arrange on watercolor paper, paper bag, or white cotton cloth. You can use whole flowers if they are flat.
- 🌱 Notice that your flower petals and leaves may be more colorful or bright on one side—experiment placing the colorful side up or down and see what happens.
- 🌱 Cover with a paper towel or wax paper.
- 🌱 With a hammer or flat rock, pound the flowers and petals into the paper or cloth. Then gently pull back the towel or wax paper.
- 🌱 What do you see? Is the pigment the same as the color of the flower petals or leaves?
- 🌱 Experiment with how gentle or hard you pound to see how it affects the color or shape.



Ready to take your art to the next level? Check out this cool video and make a bookmark:

The Fine Art of Flower Pounding

<https://www.youtube.com/watch?v=G4F400ISeuA>



LEARN ABOUT POLLINATORS AT THE CONSERVATORY

These pocket demonstration gardens inspire caregivers and delight children. It is the caregiver who is empowered to make a positive change in the daily life of a child, and this colorful, charming, do-it-yourself garden collection encourages parents, grandparents and teachers to take away creative ideas to do just that.

The garden is alive with butterflies and native bees. Children especially like to watch the ruby-throated hummingbird fly in for a taste of nectar at the feeder. A secret stepping stone path leads to the center of the “Most Beautiful Rain Garden Ever.”



POLLEN/FLOWER DISSECTION

Pollen is a fine powdery substance, usually yellow in color, which are microscopic grains that come from the male part of the flower called the anther. When an insect visits a flower, these tiny pollen grains collect on the insect's legs or other body parts and then is carried to other flowers - this is called pollination.



HOW TO DISSECT A FLOWER

Materials needed:

- 🌻 construction paper (black or blue) you can also use any dark surface
- 🌻 tweezers - optional
- 🌻 magnifying glass - optional
- 🌻 flower bloom that you can easily see the flower parts:
Lily, Petunia, Honeysuckle, Hibiscus



1. Take your flower bloom and carefully pull back the petals.
2. Next look for the anther, it looks like a grain of rice.
3. Now touch the anther to the paper or dark surface.
4. You should see something that looks like yellow dust on the paper or dark surface - these are the tiny pollen grains.
5. If you have a magnifying glass take a look at the pollen grains with it.
6. Do the pollen grains look different using the magnifying glass? If so, what is the difference?



Now in your journal, draw what the pollen grains look like to you.

POLLINATION OBSERVATION

Pollination is when pollen is moved within one single flower or carried from flower to flower by animals as birds, bees, bats, butterflies, moths, beetles, or by the wind. Now it's time to put your observation skills to the test.

BECOME A SCIENTIST!

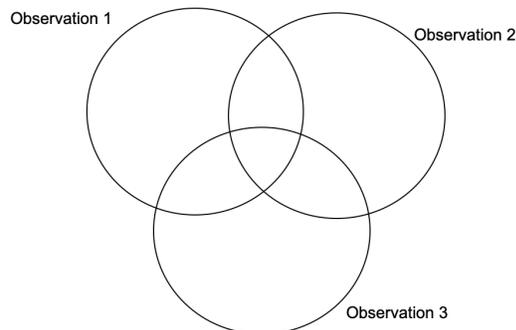


Materials needed:

- 🌿 paper/notebook
- 🌿 pencil
- 🌿 crayons/color pencils



1. Find a flowering plant
2. Observe it for about 8 mins
3. Write down what you observed
4. Now find second, different flowering plant
5. Observe it for about 8 mins
6. Write down what you observed
7. Now find third, different flowering plant
8. Observe it for about 8 mins
9. Write down what you observed
10. Now make a venn diagram on another piece of paper
11. Label it as shown - then fill in the venn diagram with your observation data to help you organize your data:



BEE HOUSE

Bees live in groups called colonies. Each colony has one queen. The queen has a longer body than all of the other bees in the colony. Drone bees are smaller than the queen. They are male bees and their only job is to mate with the queen so she can lay more eggs. One colony will have about 100 drone bees. Worker bees are the smallest bees in the colony. They are all female and have lots of different jobs including feeding the larvae; cleaning the hive; creating wax and using it to make new cells; grooming and feeding the queen; guarding and protecting the hive; and leaving the hive to collect pollen, nectar, and water. There are thousands of worker bees in the colony.



MAKE A BEE HOTEL

Now we are going to make a Bee Hotel for your backyard. Below are a few links to a couple videos about how to make a Bee Hotel at home using materials that you should have around your house. Below that you will find the written instructions.

<https://www.youtube.com/watch?v=8ADMCezLwWU>

<https://www.youtube.com/watch?v=NaNxUd9Nb48>

<https://www.youtube.com/watch?v=EvSoQWZE7Zk>



Materials needed:

- 🌿 plastic bottle, milk carton or tin can – any size
- 🌿 string or twine
- 🌿 ruler
- 🌿 scissors
- 🌿 pencil
- 🌿 paper bags
- 🌿 materials you can use inside the bee hotel
leaves, pinecones, bark & twigs, moss, cardboard,
wood chips, bamboo, popsicle sticks



SUPERHERO POLLINATORS

Ohio Pollinators: hummingbirds, butterflies, moths, beetles, flies, wasps, and bees. In tropical rainforest areas, bats are important pollinators.

Pollinators help create and maintain habitats and ecosystems that many animals depend on for food and shelter. Honey bees are the most commonly known pollinator and pollinate 90% of our blueberry, cherry and apple crops. Pollen sticks to the bees legs and body, which is then carried to other parts of the flowers or other flowers.

Hummingbirds are also pollinators, they go to flowers to drink nectar found at the base of a flower and then carry the pollen that sticks to their body to other flowers.



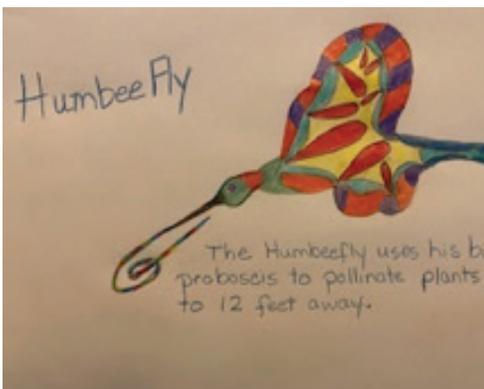
CREATE YOUR OWN SUPERHERO POLLINATOR!

Think of your two favorite pollinators.
All pollinators are superheros!

Now that you have thought of your two favorite pollinators, think about their superpowers. Once you have thought of their superpowers, create your new superhero pollinator.

Things to think about before your start drawing:

- 🌿 What mouth part will it have - chomping, chewing, pinching, slurping
- 🌿 Will the legs be hairy or smooth?
- 🌿 Will the eyes be on the front of the head or the sides
- 🌿 Will you fly fast like a hummingbird or slow like a butterfly?



BUTTERFLY FEEDER

Butterflies can be found all over the world! They live on every continent except Antarctica. Butterflies are cold-blooded creatures so they are more likely to be found in tropical climates. However, in Ohio we have about 384 butterfly and moth species. The Monarch butterfly is the most common and well known species in Ohio. Butterflies are great to have in your garden, because they are pollinators. Did you know that you can build your own butterfly feeder out of supplies that you have at home.



FEED THE BUTTERFLIES

Materials needed:

- 🌿 Plastic container: plate, lid of a to-go container, bottom of milk jug, bottom of a 2 liter
- 🌿 hole punch or something to make holes in the plastic container
- 🌿 cotton balls or sponge
- 🌿 rocks
- 🌿 string



1. punch holes in the side of the plastic container -
2. Run the string through the holes so they meet in the center
3. Tie strings together in the center of the container with enough left over to hang the feeder
4. Make butterfly food:
Mix 10 parts water to 1 part granulated sugar
(use tablespoons or teaspoons depending on the size of your jar),
use hot/warm tap water, this will help dissolve the sugar.
5. Get the cotton balls or sponge damp in the butterfly food.
6. Place cotton balls or sponge on the plastic container.
7. Hang it in a tree and wait on the butterflies to appear.





SENSORY ACTIVITIES AT THE CONSERVATORY

The Scotts Miracle Foundation Children's Garden is about testing out your senses - Bee Bop corner challenges your hearing by playing on different instruments and trying out different sounds.

The sensory garden lets you smell and touch different herbs. When you visit, make sure to use your sense of sight and look high in the trees for squirrels and to find the elusive hawk who calls the garden her home!



SENSE OF: SIGHT

Everywhere you look in the Children's Garden, you will see rainbows. A rainbow is a multicolored arc that forms in the sky. Rainbows are created by both reflection and refraction (bending) of light in water droplets in the atmosphere, which results in a spectrum of light appearing. Let's go on a nature scavenger walk using the colors of the rainbow.



RAINBOW SEARCH

Materials needed:

- 🌿 colored pencils or crayons
- 🌿 black pencil or crayon
- 🌿 notebook or paper



1. Draw a giant rainbow on a piece of paper and take it with you on your walk.
2. Find 3 things of each color of the rainbow – red, orange, yellow, green, blue, and purple.
3. Every time you find a new object, use your black pencil or crayon and draw or use words to describe it on the matching rainbow color.



Have you ever wanted to capture a rainbow and bring it home? Learn how to make your very own rainbow:

<https://www.youtube.com/watch?v=Cm9ZkYTnCNE>

To learn more, check out The Science of Rainbows:
<https://www.youtube.com/watch?v=5pYnC-ONdXQ>

SENSE OF: SOUND

Nature provides us with many unforgettable sounds - breezes whistling through the leaves, birds singing early in the morning, and streams gurgling over rocks. Our ears are what we use to hear the sound. Ears are on the opposite side of our heads for a reason. They are in the best position to help us determine where the direction of the sound. This is important for animals too. Locating a sound helps animals in several ways; it allows them to find mates calling, hear a predator in the distance, and to find food.



MAKE YOUR OWN ANIMAL EARS

Materials needed:

- 🌿 pencils, crayons, and paper
- 🌿 paper
- 🌿 paper or plastic cup
- 🌿 scissors



1. Find a safe, comfortable outdoor space where you can sit quietly. Then close your eyes and listen to the sounds around you for several minutes.
2. With your pencils, crayons, and paper, make a “sound map.” Put an X in the middle of a page to represent you, and then use pictures or words to show the locations of the sounds you hear all around. Use lines to show directions and distances.
3. Which sounds did you like most? Least? What else did you hear? What might have caused the sounds you heard?
4. Name some animals that are active at night. Do they have any special adaptations for seeing and hearing in the dark? For example, foxes have large ears for picking up small sounds.
5. Mimic fox ears by cutting off the bottoms of paper cups and gently fitting the cups over their ears. How does this change what you hear? Can you add any new sounds to your map after listening with these new ears?

Can you guess these sounds:

https://www.youtube.com/watch?v=3FPKHzzp_ng

SENSE OF: TOUCH

Skin is the largest sense organ, and it allows our entire body to experience a “sense of touch.” Our sense of touch uses many different receptors (small cells) that help us to respond to various stimuli (a thing that produces a reaction) such as pain, pressure, tension, temperature, texture, shape, weight, contours, and vibrations. Let’s discover shapes and textures in nature using trees at a local park, a mystery box, and use our sense of touch!



WHAT CAN YOU FEEL?

Materials needed:

🌿 box

In your yard gather the above materials and then see if you can use these materials to construct a dam or lodge-like beavers do.

1. Take a walk and find an area with at least three different trees.
2. Collect five objects or more from the ground underneath the trees.
3. Place the objects in a “mystery box” so the items can be felt but not seen.
4. Feel the items in the mystery box and guess what you have in the box. As an extra challenge, search the collection area to find matching objects.
5. Return the collected objects to the ground.
6. Find another area to explore and do again!
7. What is important about your sense of touch? How do you use it?
8. What would life be like without your sense of touch?
9. Can you identify objects by only feeling them? Close your eyes and examine trees using only their hands. Can similarities and differences be found?



Take a deep dive into:

How Your Skin Works: <https://www.youtube.com/watch?v=aMGgCxUyXT8>

Learning About Trees: <https://www.youtube.com/watch?v=abVvZLyZAlg>

Tree Bark Rubbing: https://www.youtube.com/watch?v=_JX00ICwYcs

SENSE OF: SMELL

Smells are all around us, some wonderful and some... we may not like them so much. Tiny odor molecules pass through the nose. The receptors send messages to the brain about the smells. Your sense of smell can help you understand your world. You know when you've burnt the toast, and the smell of cut grass alerts you that summer has finally arrived.

Take a walk outside and test out your smelling skills and pick some herbs, flowers, or pine needles along the way.



SENSORY DOUGH (THIS ACTIVITY REQUIRES ADULT ASSISTANCE)

Materials needed:

- 🌿 1.5 cups water
- 🌿 1 cup salt
- 🌿 2 cups flour
- 🌿 large bowl
- 🌿 2 tbsp vegetable oil
- 🌿 1 teaspoon of lemon juice
- 🌿 saucepan
- 🌿 spoon
- 🌿 flowers, herbs, pine needles, herbs that you picked up on your walk

1. Combine water, oil, salt, and lemon juice and warm in a saucepan.
2. Remove from heat and let cool.
3. Put your flour in a large bowl and add flour.
4. Add the liquid from the saucepan into the flour .
5. Add in your flowers, pine needles (crush up first) or herbs
6. Stir, then knead until smooth.
7. Now use your imagination and create something out of the dough!

Take a deep breath and watch this video on how our nose works:

<https://www.youtube.com/watch?v=V9CpmgTPhu8>

Dogs are known to have great sniffers, see why that is:

https://www.youtube.com/watch?v=p7fXa20cc_U

SENSE OF: TASTE

Did you ever wonder why your favorite foods taste so good? Well, you can thank your taste buds for letting you appreciate the saltiness of pizza and the sweetness of cake. Our tongue is the sensory organ that allows us to experience flavors that are sweet, salty, sour, and bitter. Look at your tongue. Do you see bumps? Those bumps are called papillae (puh-PILL-ee), and most of them contain taste buds, about 10,000 to be exact.



Taste and food go hand-in-hand. Let's grab a snack or meal and picnic outside as we taste our food and think about where it comes from!

SENSORY PICNIC

Materials needed:

🌿 snacks or meal on a plate 🌿 pencil 🌿 paper

1. Take one bite a food.
2. Write down where you think about where the food or ingredients came from: Eggs come from chickens raised on farms. Whole wheat toast has wheat in it, which is a crop planted and grown on farms.
3. Do this for every different type of food on your plate.
4. Circle the foods or ingredients that come from a plant.
5. Draw a square around the foods or ingredients that are from an animal.
6. How many do you have of each? Did they come from a farm? Could they grow in the United States? Plants like bananas would not grow here; you would need to travel to South America to see them!
7. Your sense of smell also makes food tastes better. Try eating something while you pinch your nose shut. Doesn't taste the same, does it?



When you lick an ice cream cone, think about everything your tongue has to do. It is amazing!

How your tongue works: <https://www.youtube.com/watch?v=0hwOL91cjwM>

Where our food comes from: <https://www.youtube.com/watch?v=beaoMedIZyM>