



CAPE FEAR BOTANICAL GARDEN

200+ Ways to
Explore Nature
*in Your Home and Back
Yard*

INCLUDES INSTRUCTIONS &
PRINTABLES

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GARDEN

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INTRODUCTION TO THIS GUIDE



It's time to explore the wonderful world of science and nature in your own home or back yard! In this resource, you will find over 200 activities specially designed for use at home. Each activity includes the targeted age range, a brief description of each activity, and a list of required or recommended supplies. Many of these activities can be done with ordinary household objects.

Benefits of Environmental Education:

- Encourages imagination and enthusiasm through hands-on learning
- Enables students to apply their classroom learning to the real world and make connections
- Strengthens critical thinking skills through hands-on research and investigation
- Fosters environmental behaviors and civic engagement
- Promotes feelings of well-being and reduces stress

Safety First!

- Be cautious if exploring in a wooded area. Remember: "leaves of three, let it be!" or "Hairy rope, that's a nope!" Other safe plants look like poison ivy, but never touch any with 3 leaflets if you don't know for sure.
- Some insects and crawly critters are fun to look at, but aren't safe to touch. Here are a few you should look out for:
 - Bees & Wasps
 - Spiders
 - Fuzzy Caterpillars
 - Ants
 - Centipedes
 - Wheel bugs



Learn by Doing!

Active learning isn't just more engaging for children, it's scientifically proven to work! In a recent study of college STEM classes, students who were taught with a traditional lecture were 1.5 times more likely to fail. Students in active learning classes also outperformed the traditionally taught students by 6 points or half a letter grade. In addition, active learning has been shown to help students retain more information, promote creative and critical thinking, and help students transfer their learning to new subjects and situations.

The Earth laughs in flowers.
-Ralph Waldo Emerson



Symbols



Teens



Preschoolers

NC STANDARD COURSE OF STUDY

Parents may want to choose activities which complement their child's studies in school. You can get the full NC Essential Science Standards online from the NC Department of Public Instruction, but here are a few of the most important nature topics covered in each grade level for K-8th grade with matching activities.

Kindergarten

How Organisms Move: *Animal Movement Dice*

Using the Five Senses: *Texture Hunt, Herb Exploration*

Characteristics of Living Things: *Stuffed Animal Sorting, Plant a Seed*



First Grade



Day/Night and Moon: *Look at the Moon, Oreo Moon Phases, Build a Sundial*

Rocks and Soils: *Dirt Pudding, Layers of the Soil*

What Plants and Animals Need: *Plant an Experiment, Plant a Seed, Make a Bird Feeder*

Second Grade

Weather: *Make a Weather Report, Draw a Tree in 4 Seasons, Make a Thunderstorm*

Animal Life Cycles: *Catch Butterflies, Find Insects with a Soil Sifter, Build a Roly Poly Habitat*

Solids and Liquids: *Experiment with Evaporation*



Third Grade



Solar System: *Star Gaze, Build a Sundial*

Parts of a Plant: *Eat All the Parts of a Plant*

Seeds: *Plant a Seed, Seed Dissection*

Soil: *Edible Dirt, Layers of the Soil, Model the Movement of Water through Soil*

Fourth Grade

Moon: *Look at the Moon, Oreo Moon Phases*

Fossils: *Create a Fossil, Timeline of the Earth*

Adaptations: *Create Animals Adapted to Different Biomes, Make a Blubber Glove, Worm Study*



NC STANDARD COURSE OF STUDY

Fifth Grade

Weather: *Make a Weather Report, Find Different Types of Clouds, Make a Thunderstorm*

Ecosystems: *What's in Your Kitchen? Thank a Pollinator, Grow Some Mold on Purpose*

Inheritance: *Edible DNA*



Sixth Grade



Solar System: *Star Gaze, Oreo Moon Phases*

Interior of the Earth: *Layers of the Earth*

Soil: *Model the Movement of Water through Soil. Sediment Jar Experiment, Layers of Soil*

Photosynthesis: *Chlorophyll Prints, Grow some Algae*

Flowers: *Dissect a Flower*

Seventh Grade

Atmosphere/Weather: *Make a Weather Report, Make a Thunderstorm, Tornado in a Bottle, Find Different Types of Clouds, Test for Air Pollution*

Plant Cell Structures: *Chlorophyll Prints*

Genetic Inheritance: *Edible DNA*



Eighth Grade



Physical Matter: *Leak Proof Bags, Explore Density*

Renewable and Nonrenewable Resources: *Learn some of the Products that Come from Wood!, Find out your Carbon Footprint!*

Water Quality: *Clean Water Pollution, Model a Watershed*

Geological History of the Earth: *Make a Fossil, Create a Timeline of the History of the Earth*



ANIMAL ADAPTATIONS



T Create Animals Adapted to Different Biomes - Ages 8+

Supplies: Clay or Play-Doh, Craft Supplies like Googly Eyes, Feathers, Pipe Cleaners, Pom Poms, Felt, Popsicle Sticks, Etc.
Explore the many ways in which animals are adapted to their specific environments by creating unique "Super Animals" for different biomes. Use clay or whatever craft supplies you have on hand to create the animals themselves. There are so many extensions for this activity. You can make trading cards featuring your animals, create a biome diorama in an old shoe box, or turn it into a game where the other players guess which biome each animal belongs to.

A Make a Crisco Blubber Glove - All Ages!

B C *Supplies: Crisco, 2 Ziploc Bags, Duct Tape, Bucket of Ice Water*
Blubber is the fat layer beneath the skin of many sea animals, such as whales, sea lions and penguins, that helps keep them warm in frigid weather. Fill one bag with Crisco and then carefully insert a second bag inside it. Carefully seal the layer between the two bags with duct tape so the Crisco does not get outside of the outer layer. Then, insert your hand into the inner bag/"glove" and try holding ice or submerging your "gloved" hand into ice water. Do you feel the cold?



Shed like a Reptile - All Ages!

Supplies: Pantyhose, Scissors

Reptiles have to shed their scaly skin. Snakes shed their skin all in one piece, turning it inside out, so that the shed skin forms a tube. Lizards shed their skin in pieces, often starting with a split in the back. Try to "shed" a piece of pantyhose by getting it off your arm without using your hands!

ANIMAL ADAPTATIONS

Make a Flying Squirrel Paper Airplane - All Ages!

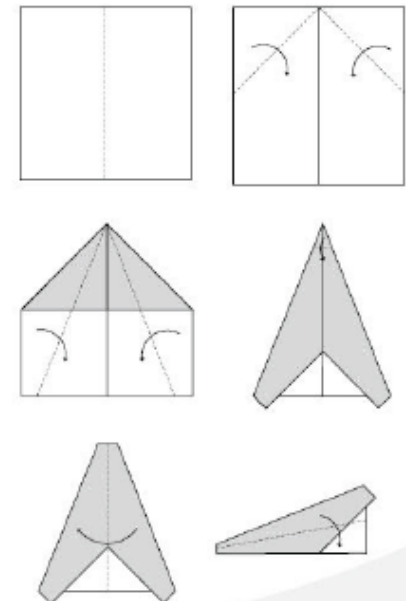
Supplies: Brown Construction Paper

Did you know? Flying squirrels don't actually fly! They leap from one tree and glide through the air to another tree. They spread their feet outwards, exposing a furry membrane that stretches between their front and back legs. This membrane works kind of like a parachute, keeping the animal in the air until it reaches a nearby tree.



Make a paper airplane that mimics the flying squirrel's gliding motion by following these steps:

Long distance glider



Don't forget to draw a squirrel on your airplane to make it even more fun!

ANIMAL ADAPTATIONS

T Learn the Difference Between a Monarch and a Viceroy - All Ages!

Supplies: Internet Access

Compare and contrast pictures or if you're lucky, in your own backyard. Follow this link for an in-depth description of these two interesting creatures. <https://sciencing.com/tell-between-monarch-viceroy-butterfly-5614922.html>



A Make a Claw to Dig - All Ages!

B C *Supplies: Plastic Forks, Rubber Bands or Tape, Dirt to Dig*
Many animals have claws that they use to dig for food, to make shelter, or to get away from predators. Make a claw for digging through dirt by using plastic utensils (forks and spoons are especially good!) to build a claw shape. Use rubber bands or tape to keep your claw together. Try to design different claws based on different types of animals: bear claws, cougar claws, hawk or owl talons, etc. When you're ready, go outside and use your claw to dig in the dirt or fill a container with sand or dirt and dig!

ANIMAL ADAPTATIONS

Meet a Mate - All Ages!

A *Supplies: Empty Film Canisters or Other Small Sealed & Non-See-Through Containers, Assorted Small Objects (Paper Clips, Pennies, Pebbles, Sand, Acorns, Dry Beans, Marbles, Etc.)*

In spring, birds sing and frogs croak hoping to find mates, but they all must find a mate of their same species. That means animals must distinguish between the different calls. You can practice this skill too with a fun game. Create about 10 sealed containers each with a small object that makes a distinctive sound when shaken. Make sure each container has a matching pair, so for example, 2 containers have marbles, 2 have sand, 2 have paper clips, 2 have acorns, and 2 have dry beans. Then, without looking inside, try to match the containers by the sound they make. At the end, you can open the containers and check your answers.



Features of NC: Salamander Adaptations



NC is home to more salamanders than any other place on Earth. Mostly located in the western mountain region, the salamander species adapted to the many unique niches provided by the mountain streams, caves, and forests. Check out the book: *The Great Smoky Mountain Salamander Ball* by Lisa Horstman for a fun, child friendly look at the variety of salamander species in NC.

ARTS & CULTURE

T Natural Pigment Paints - All Ages!

Supplies: Liquid Glue, A Container, Paint Brush, Paper (Thicker is Better!)

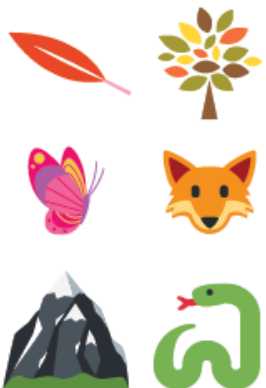
Create natural paints by mixing ingredients from nature into glue. Soil will give you browns and blacks. Clay makes a reddish color. Pound up leaves to create green or flowers for even more colors. Try making cave painting art with simple designs and symbols.

Story Stones - All Ages!

Supplies: At Least 5 or 6 Small Stones (Collected from your Yard is Fine!), Acrylic Paint, Brush

If you collected stones outside, wash and dry them first. Then decorate each stone with a small, simple image like a ladybug, a stick figure, or the sun. Once you've created several stones use them to create stories. Play games where the story has to incorporate whatever stone you draw next or simply use the stones as a storytelling prompt to inspire your own creativity.

Story Stone Ideas



ARTS & CULTURE

Natural Material Art - All Ages!

Supplies: None Needed! Basket or Bucket may be Helpful to Collect the Natural Materials.

Get inspired by the art of Andy Goldsworthy! Now it's your turn. Create art out of natural materials like leaves, rocks, sand, and sticks placed in interesting shapes. Use elements of nature to complement the art like a sculpture built in the crook of an old tree or a circle of leaves around an amazing boulder. You can also play with contrast in your art arranging darks and lights next to each other.



*Rowan Leaves and Hole by
Andy Goldsworthy*

T Nature Journal - Ages 5+

*Supplies: Notebook, Pencil, Colored Pencils and Watercolors
Optional*

Start a nature journal! Here are some ideas for what to put in your journal: drawings, watercolor paintings, poems, fun facts, stories, descriptions of how you feel in nature or what you see, drawings of objects up-close, drawings of landscapes, leaf or bark rubbings, lists of all the types of birds you've seen, or all the rocks you've found, diary entries about your adventures in nature, or questions you have about things you find. Get inspired by the famous journals and notebooks of scientists and writers like Charles Darwin, Henry David Thoreau, Ralph Waldo Emerson, Rachel Carson, and John Muir.

*Art takes nature as its model.
-Aristotle*

ARTS & CULTURE

Nature Object Drawing Game - Ages 5+

Supplies: At Least 2 People, Paper, Pencil, Clipboard Optional

Have each person collect several interesting nature objects (pieces of bark, rocks, leaves, flowers, etc) without showing the other person. Then sit back to back. One person will describe their object in as much detail as possible, while the other tries to draw the object. This game is great for practicing descriptive language skills.

T Nature Photography - All Ages!

Supplies: Camera (A Camera Phone Counts!)

Become a backyard nature photographer! You can even take videos or submit your photos online to citizen science websites like iNaturalist. Don't worry about taking perfect photos. Even if every photo doesn't turn out print-worthy, nature photography is a great way to notice the details in nature. A photo will often let you go back later and identify the animal or plant you found!



ARTS & CULTURE

Roll a Creature - Ages 5+

Supplies: Dice, Paper, Pencil, Colored Pencils Optional

Come up with six animals and number them one through six. Then roll the dice 3 times, once for the head, once for the body, and once for the legs. Now try to draw your mixed up creature. Does it have the head of a lion, the body of a crocodile, and the feet of an ostrich?



Roll a Mythical Creature - Ages 5+

Supplies: Dice, Paper, Pencil, Colored Pencils Optional

An extension of Roll a Creature above, you can add a bonus roll for mythical extras like wings, fangs, giantness, extra eyes, or magical sparkles. This is a great opportunity to talk about the many ways animals have sparked the creation of myths and legends like minotaurs, chimeras, or dragons.

ARTS & CULTURE

T DIY Paint Brushes - Ages 8+

Supplies: A Small Stick, A Palm Sized Rock or a Hammer

Select a small stick no thicker than your pinky finger. Then gently, but firmly hit one end of the stick with a hammer or a palm-sized rock. The end of your stick should splay out like a paint brush. It may be helpful to try a few sticks from different kinds of wood to get the best brush. This activity is great to combine with Natural Pigment Paints activity. Be careful not to hit your fingers!

T Cut Leaf Art - Ages 7+

Supplies: Several Large Leaves in Good Condition, Scissors (Fine Point Scissors are Ideal), Internet Access Optional

Create art by cutting a design into the middle of a leaf. Check out art by Omid Asadi for inspiration!

Origami Animals - Ages 5+

Supplies: Square Paper, Preferably Green

There are many animal origami patterns available online. A great one for kids to start off with is the jumping frog!



ARTS & CULTURE

Draw a Tree in 4 Seasons - Ages 5+

Supplies: Paper, Pencil, Paint or Colored Pencils or Markers.

Explore the change in seasons through art. Draw the same tree in all four seasons. Does it have flowers in spring? Colored leaves in fall? You can even add animals or people around the tree.



Make a Flipbook (A Tadpole Growing Up, A Bird Flying, Moon Phases, Etc.) - Ages 5+

Supplies: Paper, Pencil, Scissors, Ruler

Use a ruler to divide a sheet of paper into small squares or rectangles. Then draw a picture on each square, showing slight movement, change, or growth from the square before. Finally, cut out and staple all the squares together on one side. Younger children can draw a caterpillar becoming a butterfly, while older youth explore an animal's stride while running or a bird in flight.

Stick Teepees - Ages 5+

Supplies: Sticks or Clippers to Cut Sticks, Yarn and Clay/Play-Doh

Gather a collection of small sticks about the size of your forearm. Now place the sticks standing upright in a circle in clay or Play-Doh. Leave an opening on one side of the circle to create a door. Finally, use the yarn to tie the sticks together at the top. Discuss why Native Americans used transportable tee-pees instead of permanent houses, and differentiate between the native peoples who made tee-pees and lived on the plains and more local tribes who may have built other structures.

ARTS & CULTURE

DIY Pick-Up Sticks Ages 5+

Supplies: Garden Clippers, Sticks, Sandpaper Optional

Create your own set of pick-up sticks using sticks from your yard! Sanding the sticks first is optional. This is a great opportunity to talk with kids about traditional toys and games.



Did you know? Just 20 minutes in a natural setting can give your brain a creative boost!

BIRDS



Bird Behavior Scavenger Hunt - All Ages!

Supplies: Pencil and Paper, Binoculars Optional

Many amateur bird watchers get caught up on the difficulty of identifying each bird. Skip the struggle and instead keep a record of all the fascinating behaviors you observe. Can you find birds doing any of the following?

- Flying
- Pecking or Eating
- Singing
- Making an Alarm Call
- Bathing
- Swimming
- Flocking (A Group of 3 or More!)
- Walking
- Building a Nest
- Perching or Sitting on a Branch
- Gliding on an Air Current
- Preening (Cleaning its Feathers with its Beak)

BIRDS

Make a Bird Feeder - All Ages!

A **B** **C** *Supplies: Pine Cones (Larger, Fairly Open Ones are Best), Peanut Butter (Crunchy or Smooth), Birdseed, String or Twine. Suet, Lard, or Vegetable Shortening can be used as a PB Substitute.*

A pine cone bird feeder is an easy, inexpensive project, perfect even for young birders to make, and a great way to add an instant feeding station to your yard. These feeders can even be customized, and many different types of birds will eagerly visit for the treat.



Put peanut butter in a large bowl or on a plate. Have a plate of birdseed also ready beforehand. Roll your pine cone through the peanut butter until it is well covered. Then, roll the same cone through the birdseed until it is covered in birdseed. Now it is ready to hang in your yard or on your porch or balcony!

A Paper Feather Craft - All Ages!

B **C** *Supplies: Paper, Scissors*

Draw the outline of a feather on construction paper and then cut it out. Now you can give the feather a "feathery" look by cutting diagonals along the edges. Finally, decorate your feather with the pattern of your choice. This craft is a great opportunity to talk to kids about the different types of feathers (flight, plumage, or down) and the parts of a feather (vane, shaft, barbs, and hooklets).

BIRDS

Hummingbird Nest Scavenger Hunt - All Ages!

Supplies: Paper and Pencil

Birds use many different materials to build nests. Hummingbirds in particular build intricate tiny nests which actually stretch to accommodate the eggs as they grow from the size of jelly beans into young hatch-lings. See if you can find all the supplies to build a hummingbird nest:

- Moss or Lichen
- Small Bits of Leaves
- Bark
- Small Twigs
- Feathers, Fur, or Hair
- Fuzzy Plants such as Dandelions, Cattails, or Thistles
- Spider Silk



Build a Nest - All Ages!

Supplies: Clay, Paper Plate, Assorted Natural Materials

Start out by forming the base of the nest with a clay bowl shape settled on the plate. This will give you something for the other materials to stick onto and make it much easier to create your nest. It's important to build your nest on a plate, so that you can move it later without breaking it. You can then use any collected natural materials to make your nest look as realistic or fantastical as you want. You can also explore the many real life materials that birds use for nesting, including mud, pet hair, dryer lint, yarn and string, weaved grasses, spider webs, and more!

BIRDS

Silent Owl Wings - All Ages!

Supplies: Two Pieces of Rope or Thick String, Scissors

To hunt at night without spooking their prey, owls must fly silently through the trees. Unlike hawks, the edges of owls' feathers have a fringe-like fluting that makes the owls' flight far quieter. In this picture the owl is on the left and the hawk on the right. You can test out why this works for owls with two pieces of rope. First, take one of the pieces of rope (one in good condition) and grasp it about 1 or 2 feet from the end. Then spin the rope in a vertical circle. You should hear the rope sweeping through the air. Now fray the sides of the second rope so that the rope edges are fuzzy instead of smooth. When you spin the second rope, it will be much quieter, just like an owl's wings.



Test Your Talon Strength - All Ages!

Supplies: A Bathroom Scale

Birds of prey like hawks and owls typically have an extremely powerful talon grip. Below is a chart with the estimated pounds of force each species can exert per square inch of grip (psi). You can test your own grip strength by grabbing a bathroom scale by the sides with fingers on the bottom and thumbs on top. Grip as strongly as you can and see how much force you can exert, then compare yourself to the chart below:

Vultures 0 psi
Falcon 200 psi
Red-Tailed Hawk 200-300 psi
Great Horned Owl 500 psi
Golden Eagle 650 psi

Raptors have such strong talons, because they kill and carry prey with them. Why do you think the vulture is an exception?

BIRDS

Can your Nest Keep an "Egg" Warm? - Ages 8+

Supplies: A Thermometer, A Small Container Full of Warm Water, Paper, Pencil

This is a great experiment or STEM project for students to learn about insulation. First, build one (or more!) nests outside. You can try creating a nest in a pile of leaves, digging a hole in the ground, or building a nest out of mud. Experiment with different methods and shapes. Then heat up the water you're going to use and measure the temperature. Record the temperature. Then close the container and place it in the nest. Come back in 15 minutes and measure the water's temperature again. Has it gone down? By how much? See if your next nest design can keep the water warm for longer!

Provide Nesting Materials for Birds - All Ages!

Supplies: String, Yarn, Thread, or Pet Fur

You can reuse old bits of string, yarn, thread or even pet fur by sharing it with nesting birds. Spread the string out on a clear surface outside and keep a watch for birds who might use your gift! If it's very windy out, you can also place the nesting material in a clear mesh bag or thread it loosely through a leftover strawberry container or suet cage. Just don't tie the thread down or the birds won't be able to use it.



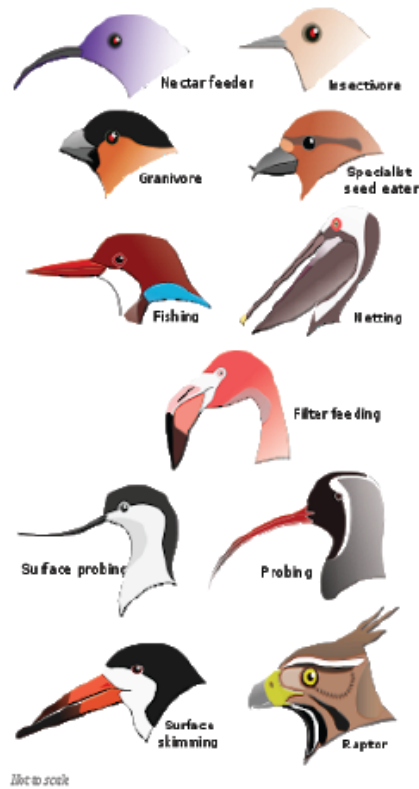
BIRDS

T Explore Beak Adaptations - Ages 6+

Supplies: Clothespin or Clip, Serving Spoon, Two Types of Dry Beans or Seeds, Tray, Timer

There are dozens of different shapes of bird beaks and each bird is adapted to the environment it lives in and the type of food it eats. A pelican beak needs to scoop up fish from the water, while a hummingbird needs to reach the nectar at the end of a long tubular flower. Woodpeckers use their beaks to peck for bugs and cardinals crack open seeds.

You can compare two different "beak" shapes with this fun experiment. First, pour the dry bean or seed mix onto a tray. Set your timer for 1 minute and see how many beans you can grab using the spoon. Now try again with the clothespin. Then play again with a new rule: you only want to eat one type of seed! You'll discover that the spoon may make it hard to get only one type of seeds. A pelican beak can't selectively pick out only certain seeds. Now the clothespin has an advantage!



BIRDS

T Bird Sports Team Trivia- All Ages! *Supplies: Printer, Scissors.*

Birds are often used as mascots or representation for sports teams everywhere! Their eyesight, speed, and quick reflexes are qualities to be admired. It's no wonder sports teams are named after them! Print out the trivia cards on the following page and test your bird sports team knowledge. Credit to Flying WILD for the Trivia Cards: <https://www.fishwildlife.org/projectwild/flying-wild/flying-wild-resources>

Features of NC: Red-Cockaded Woodpecker



The red-cockaded woodpecker is a small woodpecker with a short straight beak and bright white cheek patches. It's also the model for the new mascot of the Fayetteville Woodpeckers baseball team. Red-cockaded woodpeckers are habitat specialists who excavate nest holes in the hardwood of longleaf pines. Longleaf pine forests once stretched across a much wider region of NC, but depend on regular forest fires for growth. The longleaf pine cone is sealed with a sticky resin that has evolved to burn off in forest fires releasing the seeds. Since humans control forest fires, the longleaf pines and the red-cockaded woodpeckers have faced difficulty. Woodland preservation efforts and controlled burns are two ways conservationists now hope to help the species.

BIRDS

<p>What national basketball team from a southern city is represented by this group of predatory birds?</p>	<p>What hockey team from a southern city is represented by this group of songbirds?</p>	<p>This national hockey team's mascot is a black-and-white bird that loves the cold.</p>
Atlanta Hawks	Atlanta Thrashers	Pittsburgh Penguins
<p>What is the national hockey team with a bird mascot that will "Quack" you up?</p>	<p>This national football team is represented by a group of birds that are large, strong, and skilled hunters. So much for "brotherly love" in this town! Who are they?</p>	<p>The bird mascot for this national football team is large and black. It might occasionally be heard chanting, "Never more!" What is it?</p>
Anheim Mighty Ducks	Philadelphia Eagles	Baltimore Ravens
<p>This national football team's mascot represents a group of birds that is extremely fast. They can soar to great heights and in a split-second pounce on unsuspecting prey. What are they?</p>	<p>The bird mascot for this national football team is also known as an Osprey. It is an efficient hunter that prefers to eat from the deep blue seas or whatever the best fishing hole might be! What is its other name?</p>	<p>This national football team has a bright red bird for its mascot. The bird is a non-migratory bird and can be found throughout the eastern central U.S., as well as in the western state it represents. What is it?</p>
Atlanta Falcons	Seattle Seahawks	Arizona Cardinals
<p>This national baseball team from a harbor town has chosen a colorful orange and black bird as its mascot. What is it?</p>	<p>The bird mascot for this national baseball team is blue and can be described as noisy and bold. It wouldn't hesitate to steal an egg from a nest and often likes to travel in groups. What is it?</p>	<p>This national baseball team's mascot with bright red feathers and an impressive crest is the state bird for seven Eastern states. What is it?</p>
Baltimore Orioles	Toronto Blue Jays	St. Louis Cardinals

BIRDS

T Learn Bird Calls - All Ages!

Supplies: None

Birds are very social animals, and they often communicate through songs and calls. Try identifying birds outside by the sounds they make. Here are some common bird sounds:

- American Goldfinch: "Potato chip" or "Perchickaree"
- American Robin: "Cheerily, cheer-up, cheerily"
- Barred Owl: "Who cooks for you, who cooks for you all"
- Blue Jay: "Jay! Jay!", also a musical "queedle, queedle, queedle"
- Carolina Chickadee: "Chick-a-dee-dee-dee"
- Carolina Wren: "Cheeseburger, cheeseburger" or "tea-kettle, tea-kettle"
- Mourning Dove: cooing like "Ooh-ah, whoo, whoo, whoo"
- Northern Mockingbird: repeats everything 3 or more times
- Northern Cardinal: "Cheer, cheer" or "Wick, wick, wick" or "Purdy, purdy, purdy"
- Pine Warbler: slow musical trill, one pitch
- Tufted Titmouse: "Peter, peter, peter" or "Chiva, chiva, chiva"



*Be as a bird perched on a frail
branch that she feels bending
beneath her and still sings away
all the same, knowing she has
wings.
Victor Hugo*

BIRDS

Hovering Hawk Craft - Ages: 5+

Supplies: Construction Paper, White or Yellow Pastel or Chalk, Scissors, Double-Sided Tape or Regular Scotch Tape, Yarn or Thread, Internet Access

Make your very own hovering hawk by following these instructions:

- Print out this hawk outline on brown construction paper:
<http://www.doodlesandjots.com/wp-content/uploads/2012/03/Hovering-Hawks.pdf>
- Add some white or yellow to the breast area with pastel or chalk and blend.
- Cut out the hawk shape and fold along dotted lines.
- Place a piece of double-sided tape inside, or loop a regular piece of tape so all sides are sticky.
- Tie thread in a loop and sandwich between the tape and close.
- Now you can hang your hovering hawk above your bed or anywhere you'd like!



CONSERVATION

T Research an Endangered Animal - Ages 8+

Supplies: Internet Access, Paper and Pencil

Pick one animal to research and learn all about it. Where does it live? What does it eat? Why is this species endangered? Are there efforts being made to save this animal? You can learn a lot about the complicated problems of species conservation from looking closely at a case study of one species.



Red wolves are an endangered species that were reintroduced in Eastern, NC.

Research What You Can Recycle - Ages 5+

Supplies: Internet Access, Paper and Pencil

Recycling is one way everyone can pitch in to help protect the environment. Unfortunately, the rules determining what can be recycled vary according to each local town or municipality. It can sometimes be confusing and when recyclable materials get mixed in with trash, facilities can be forced to throw the whole bag out. Look up the rules where you live and recommit to recycling! Kids may want to create a poster featuring what can and can't be recycled and hang it on the fridge or a wall by the recycling can as a reminder.

CONSERVATION

T Try a Vegetarian Meal - All Ages!

Supplies: Food Depending on What You Decide to Make

Did you know that eating less meat is one of the most important things people can do for the environment? A vegetarian diet produces 2.5 times less carbon dioxide helping to slow down climate change. Vegetarian food also requires less land to grow and uses less clean water. Start small by trying one vegetarian meal. Here are some kid friendly suggestions:

- Mac and Trees - Mac and Cheese with Broccoli Trees
- Tomato Soup and Grilled Cheese
- Veggie Pizza
- Pasta Marinara with a Side of Vegetables
- Rice and Bean Burritos
- Vegetable Stir Fry with Tofu

In case you're craving dessert, ice cream is vegetarian too!



T Try a Day without Driving

Supplies: None

Driving less is considered the number one thing individuals can do to reduce their carbon footprint! The carbon dioxide emissions from driving contribute significantly to global warming and the other chemicals in car exhaust worsen air pollution. However, it can be hard to reduce the amount you drive, especially if you live in an area with limited public transportation. Start small by trying to avoid driving for just one day!



CONSERVATION

T Find Out your Carbon Footprint - Ages 5+ *Supplies: Internet Access*

There are many online quizzes which can help you calculate your carbon footprint. Try the EPA carbon calculator here:

<https://www3.epa.gov/carbon-footprint-calculator/> or the Nature Conservancy Quiz:

<https://www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/>



T Decorate a Reusable Bag - All Ages!

Supplies: One Tote Bag, Decoration Supplies like Fabric Paint, Tie Dye, or Stencils

It can be hard to remember to bring your reusable bag when you're trying to squeeze shopping into an already busy day. Give yourself an incentive to remember by decorating a reusable bag! You can use tie dye, paint and stencils, fabric markers, iron on designs, sequins, buttons, or sewn on fabric!



Features of NC: Red Wolf Conservation

Red wolves once roamed across most of the Eastern United States. They are nocturnal animals who live 8 or 9 years in the wild and pair bond for life. After being driven to near extinction, conservationists made an effort to reintroduce the wolves in eastern NC starting in 1987. The effort has met with resistance from local landowners who fear the wolves may hunt livestock. The wolves closely resemble coyotes and can interbreed, causing confusion for hunters who can legally shoot the coyotes. As of late 2019, only 14 known wolves remained in the wild. With pressure from a lawsuit and Governor Cooper, NC Fish and Wildlife Services has this year (2020) committed to creating a new conservation plan for the wolves, possibly including more captive bred releases or coyote sterilization.

CONSERVATION

T Make your own Liquid Soap - All Ages!

Supplies: Castille Soap, Essential Oils, Water, Empty Bottle with Pump Lid

Directions:

1. Take 1 tablespoon soap (2 for a large soap dispenser)
2. Place soap into chosen dispenser
3. Add 15-25 drops of essential oil of your choice (keep dropping until you can smell the oil from the top of the dispenser)
4. Add water to near top of dispenser
5. Add pump lid
6. Shake

T Make your own Powder Laundry Detergent - All Ages!

Supplies: Borax, Bar Soap, Washing Soda, A Container

Directions:

1. Shave your bar soap with a cheese grater on the finer side.
2. Measure out equal parts of each ingredient.
3. Mix the ingredients 1:1:1 of Borax, grated bar soap and washing soda in a container thoroughly.
4. You're done! Use 2 tablespoons of detergent when doing a regular sized load of laundry.



CONSERVATION

Donate to a Nature Conservancy or Botanical Garden - All Ages!

Supplies: Money - even if it's a small amount every little bit counts!

Thank

You

By helping to support a nature conservancy or botanical garden your support for nature can go far beyond what you can do individually. To donate to the Cape Fear Botanical Garden contact us at 910-486-0221 or go on our website at capefearbg.org/donate/.

Learn About the Leave No Trace Principles - All Ages!

Supplies: Internet Access

The Leave No Trace Principles are a set of seven guidelines which people are encouraged to follow when visiting natural areas. Following these seven guidelines will ensure that, like their unofficial mascot Big Foot, you leave no trace. The Leave No Trace Principles are also taught to Boy and Girl Scouts and a simplified version is available for children. When learning about the principles with young children, focus on encouraging ideas about how to follow each of the principles rather than memorizing all seven.



CONSERVATION

Place Your Leftover Vegetable Scraps in Water and Watch Them Grow into a New Plant - All Ages!

Supplies: Left Over Vegetable Pieces, Container, Water

This is a simple and fun experiment that you can continue to watch over and over again. Many fruits and vegetables can be grown from the parts of plants that we typically discard. Here are a few examples, but feel free to experiment on your own as well!

- Celery - Trim the base of the celery stalk by about 2 inches and then place the celery in a shallow bowl of water. Replace the water every couple of days, and spray the top of the celery daily to keep it moist.
- Herbs - Place herb cuttings in a jar of water and let sit in a sunny area. Change the water every few days. Roots should form shortly!
- Ginger - Take your leftover ginger and soak it in warm water overnight. Once this is done, plant it sideways in a container and cover it with soil. Keep this in a sunny place and keep it moist.
- Garlic - Take a garlic clove and place it pointy side up in soil. Garlic greens will sprout from this!
- Lettuce - Instead of throwing the base of your lettuce away, place it in a shallow bowl of water instead. Soon you'll have fresh new leaves growing.



CONSERVATION

Make Recycled Instruments - Ages 4-10

Supplies: Use What You Have!

Get inspired by the amazing real story of the Paraguay Recycled Orchestra, who turned landfill trash into instruments to create an incredible orchestra in a community that could not afford new instruments. Then create your own instruments:

- A Triangle - An unbent paper clip and bent wire clothes hanger
- A Shaker - A jar and beans or coins
- A Drum - an empty can and a pencil or a paper cup, a balloon stretched over top, and a rubber band to the balloon in place
- A Harp - A box with rubber bands stretched across the top
- A Flute - Cut straws taped together
- Castanets - Two jar or can lids and tape for finger holds

Make an Endangered Animal Alphabet Book - Ages 4-8

Supplies: Paper, Internet Access, Crayons, Markers, or Colored Pencils.

Create an alphabet book featuring an endangered animal for every letter. This activity helps kids review the alphabet and letter sounds, while also learning about many interesting animals and the importance of protecting the environment.



DINOSAURS

Draw Dino Tracks to Scale - Ages 5+

Supplies: Sidewalk Chalk, Metric Measuring Tape or Ruler



Use the measuring tape and sidewalk chalk to create a large grid with 30 cm by 30 cm squares. Now you can draw your dinosaur tracks within the grid. Don't worry about drawing perfectly. The main goal is to get a sense of how large these animals were.

Afterwards trace your own foot to compare your track to a dinosaur's. Remember though, many dinosaurs were very small. These are just some of the largest.

Here are the sizes of some tracks you can draw. Each track length measured from the tip of the longest toe to the back of the heel:

- Tyrannosaurus Rex - 104 cm
- Allosaurus - 85 cm
- Triceratops - 90 cm
- Brachiosaurus - 260 cm
- Apatosaurus - 122 cm



DINOSAURS

Fern Prints - Ages 5+

Supplies: A Fern Frond, Paper or Card Stock, Paint and a Brush

Ferns were the first large plants to live on land. They've been around for over 350 million years! During the Age of the Dinosaurs, ferns were found all over the world and fed some of the largest plant eaters including stegosaurus, diplodocus, triceratops, and ankylosaurus. For comparison, flowering plants didn't evolve until about 125 million years ago during the Cretaceous Period. Take one fern frond and carefully paint the entire front side in the color of your choice. Then gently press the fern onto your paper. You should get a fern print.



Paleontologist Puzzles - Ages 5+

Supplies: Paper, Dinosaur Picture, Pencil, Marker, Scissors

Paleontologists have to reassemble dinosaur fossils into the shape of actual skeletons and sometimes they get it wrong! Over time scientists have changed the way T-Rex stands and even discovered that Brontosaurus wasn't a real dinosaur, but a mix of other species' bones. You can reassemble your own dinosaur puzzles. Trace a dinosaur picture onto a sheet of paper using a marker. Then carefully, using a pencil, draw lines over top dividing the paper into puzzle pieces. Now cut out your dinosaur puzzle and reassemble it as many times as you want! For an extra challenge, make several dinosaur puzzles and then mix them together.

DINOSAURS

Tissue Box Dino Shoes - Ages 3-6



Supplies: Two Empty Rectangular Tissue Boxes, Paint or Colored Tissue Paper and Glue, Scissors, Sponges or Construction Paper

Have you ever wished you could stomp like a dinosaur? Now's your chance. Paint the tissue boxes or cover them in scraps of colored tissue paper. Then cut out six triangles from the construction paper or sponges. These triangles will be your toes or claws. Glue three triangles onto the front bottom of each tissue box. Wait for the dino shoes to dry and then enjoy!



Build a Dino Nest - Ages 4-8

Supplies: None!

Most, if not all, dinosaurs are thought to have laid eggs in nests just like birds and reptiles today. Head outside and construct your own nest using materials like mud, dirt, leaves, pine needles, or sticks.



DINOSAURS

Q-Tip Skeletons - Ages: 4-10

Supplies: Q-Tips, Scissors, Glue, Black Construction Paper, Tissue Paper and Glue, Scissors, Sponges or Construction Paper

Create a dinosaur skeleton out of q-tip "bones." First, cut the q-tips in half. Then arrange them in a skeleton pattern and glue them onto the construction paper. This activity is great for thinking about the anatomy of a dinosaur. Consider the size of the rib cage or the way T-Rex walks up on its toes.



Create a Timeline of the History of the Earth - Ages 8+

Supplies: Sidewalk Chalk, Paper, Pencil, Internet Access

Draw a timeline of the Earth's history. First, you'll need to research what events you want to include and how many millions of years ago each one happened. Some events to consider are the evolution of the first plants, the first life on land, the first dinosaurs, the first humans, and even the first multi-cellular life. If you can, make the timeline roughly to scale to get a sense for how much of the Earth's history passed before the first animals even evolved. The Earth is about 4.5 billion years old!

You can also check out some of the cool photo timelines online including this one: <https://www.livescience.com/46593-how-earth-formed-photo-timeline.html>

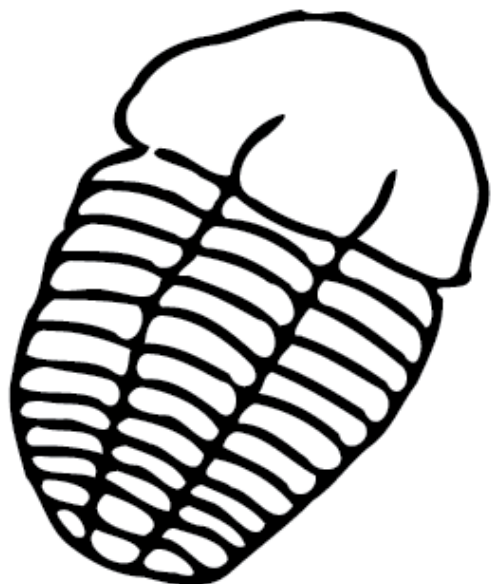
Or try a version of this activity using toilet paper at this link: https://www.earthlearningidea.com/PDF/234_Toilet_roll_of_time.pdf

DINOSAURS

Create a Fossil - All Ages!

Supplies: Clay or Play-Doh, Nature Objects or Model Dinosaurs

You can create your own fossil with some Play-Doh or clay! Collect nature objects or use a toy model dinosaur. Firmly press the object (or toy dino) into the clay and then gently pull the object out to reveal your fossil. Older children can learn about the types of fossils. The fossil created in this 1st activity is a **mold** fossil. Fossils that have the shape of the bone or object itself are called **cast** fossils. You can create a cast fossil too by allowing your mold fossil to dry and then filling it in with more clay. Fossils that aren't of the organism itself like track imprints or nests are called **trace** fossils since they show traces of the organism's existence. You can also create a trace fossil using your own footprint or by "walking" a toy dinosaur across the clay.



Trilobites like this lived over 540 million years ago!

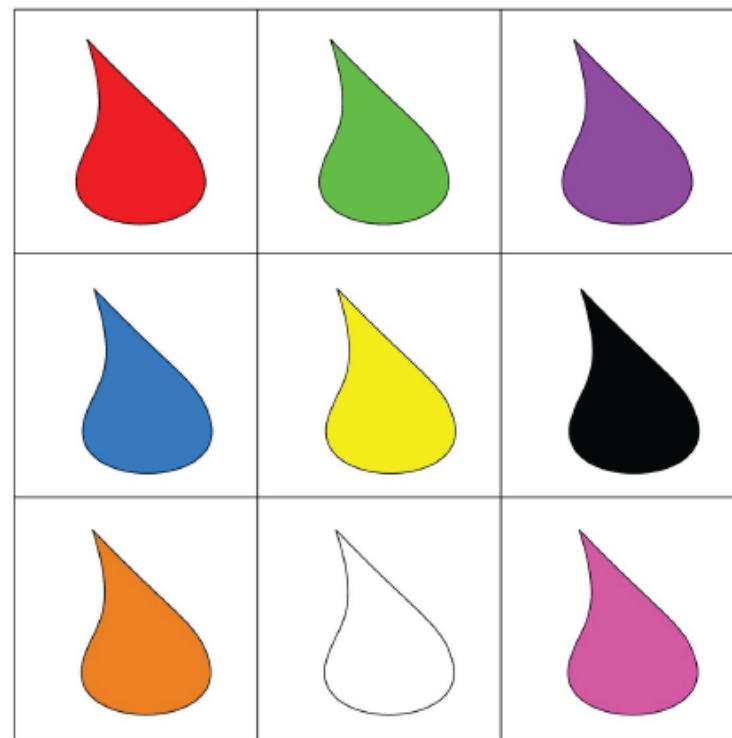
EXPLORE

A Color Scavenger Hunt - Age: 3-6

B C *Supplies: Printed Out Scavenger Hunt, Pencil*

Look for colors out in nature! Try to find all nine colors on the following scavenger hunt. Look for leaves, flowers, trees, or animals.

Rainbow SCAVENGER HUNT



Credit: <https://caldwellorganizedchaos.blogspot.com/2017/02/diy-family-game-rainbow-savenger-hunt.html>


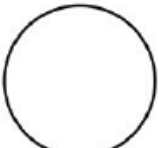
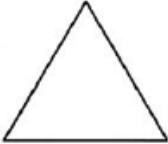

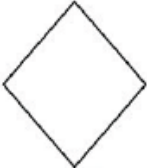
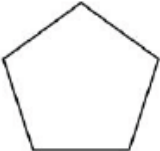
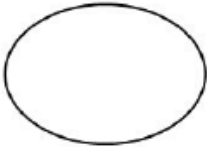

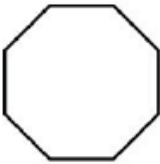


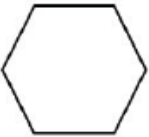
EXPLORE

A Shape Scavenger Hunt - Age: 3+

B C *Supplies: Printed Out Scavenger Hunt, Pencil*

Use this scavenger hunt to find different shapes in nature. This activity can be a great addition to a preschool unit on shapes or it can accompany a symmetry activity, a nature art project, or nature journaling.

SHAPE SCAVENGER HUNT

 SQUARE	 CIRCLE	 TRIANGLE
 RECTANGLE	 DIAMOND	 PENTAGON
 OVAL	 STAR	 OCTAGON
 HEART	 TRAPEZOID	 HEXAGON

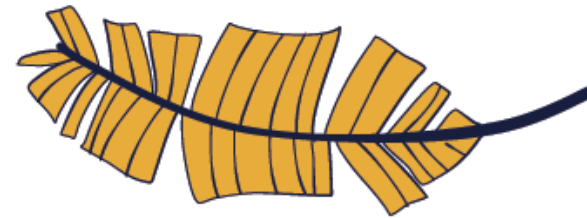
www.TheManyLittleJoys.com

EXPLORE

Wonder Scavenger Hunt - Ages 5+

Supplies: Paper, Pencil

Nature is full of wonders! For this fun scavenger hunt write the word "wonder" vertically down the side of your paper. Then find one natural object that starts with each of the letters in the word! Plus one bonus object that seems like a real wonder of nature!



A Texture Hunt - Ages 3-7

B C *Supplies: Bag or Basket, Paper Plate, Glue, Crayon or Marker*

Nature is full of fascinating textures: soft leaves, bumpy bark, prickly pine cones, and smooth stones. Young children will enjoy learning new texture words as they collect small objects from nature. Afterwards they can make a texture plate by tracing their hand on a paper plate and then gluing objects with five different textures on the fingertips.



Lamb's ear is a soft, velvety feeling garden plant!

EXPLORE

Draw a Map of your Yard - Ages 5+

Supplies: Paper, Pencil

Introduce the art and science of map making with a creative project mapping your own yard. Include important landmarks, a map key, and even a compass rose. Try making different maps, like one emphasizing natural features and another illustrating human made objects. You can also map your whole neighborhood or your local park.

iNaturalist - All Ages

Supplies: Internet Access, Camera

Become a citizen scientist by uploading pictures of local plants and wildlife on to iNaturalist. Online naturalists will then help you identify your finds and your discoveries will be added to the data used by real scientists:
<https://www.inaturalist.org/>



ecoEXPLORE - Ages 5

Supplies: Internet Access, Camera
ecoEXPLORE is an initiative of The North Carolina Arboretum where children in grades K-8 can participate in citizen science, earn badges, and win prizes by logging pictures of local plants and wildlife:
<https://www.ecoexplore.net/>



EXPLORE

Create a Curiosity Box - All Ages!

Supplies: A Box or Container, Decoration Materials

Starting in the 16th Century many aristocratic Europeans created Cabinets of Curiosity which were collections of natural and historical objects from around the world. The collections showed a scientific interest and an attempt to understand the world, but sometimes also displayed the wealth or power of the collector. Still many of the artifacts and specimens we study today were originally preserved for these Curiosity Cabinets. You can create a modern day Curiosity Box to keep your own treasures in by re-purposing an old cardboard box (cigar boxes work well) or an empty egg carton.

Study an Animal's Behavior - Ages 7+

Supplies: Paper, Pencil

Studying an animal's behavior can give you fascinating insights into animal cognition and it doesn't have to be some exotic animal at the zoo. Charles Darwin wrote famous observations of earthworms. You can observe a pet, a squirrel, or an insect. Just settle in and write detailed notes. Then look for patterns over time.



*Look deep into nature and then you
will understand everything better.
- Albert Einstein*

EXPLORE

Camp Out - All Ages!

Supplies: Sleeping Bag, Tent Optional, Fire Pit Optional

Hold a backyard camp out! All you need is a sleeping bag to sleep out under the stars. Listen for owl calls, look for moths, and reconnect with nature. Young children will enjoy the adventure of camping, without the fear of being far from home. If you already have some camping supplies, it's also a great opportunity to practice tent pitching, cooking over a fire, and using the Leave No Trace Principles.



**Look how well
this owl
camouflages!**

Test Out Camouflage - Ages 4+

Supplies: Pieces of Clothes or Small Objects in a Variety of Colors, At Least 2 People, If Possible Include Something Camo Colored

Have one person hide your many colored objects in a line among the shrubs, trees, or other plants on one side of an open area. Try to place objects near similarly colored plants and objects where possible. Then have the other person start on the opposite side of the open area and slowly advance while calling out the colored objects they can see. For example: "I see a green shirt off the the left (pointing)." Notice how much closer they have to get before finding objects which are placed against a similar colored background. Dark colors and broken patterns (like military camo) are also more difficult to find.

EXPLORE

Make a Nature Calendar - Ages 5+

Supplies: A Blank Calendar, Access to the Internet

Nature is full of amazing seasonal events! Create a Nature Calendar marking down the start of each season, important animal migrations, meteor showers, bloom seasons, full moons, and other important natural events. You can use A Farmer's Almanac for ideas, as well as, seasonal tourism guides for your area.



Make a Wilderness First Aid Kit - Ages 5

Supplies: A Small Waterproof Container (Old Tupperware or Altoid Containers are Great!), General First Aid Supplies

A Wilderness First Aid Kit needs to be light, portable, and waterproof with only the most essential first aid items. If you have some first aid supplies around your house, you can create a Wilderness First Aid kit by selecting and arranging the essentials within a recycled waterproof container. Some supplies you might consider for your kit include: band-aids, antibiotic ointment, gauze pads, safety pins, cloth tape, gloves, tweezers, small scissors, and sting wipes.



EXPLORE

What Would You Bring to a Desert Island? - Ages 5+

Supplies: Pencil and Paper

Pick just 7 things to bring with you to a desert island. This fun thought experiment can help kids think about the priorities in a wilderness survival situation. It may be helpful to talk about the 3-3-3-3 rule, which is a rough estimate of how long you can go without the essentials in extreme situations. People can, in general, survive about 3 minutes without air, 3 hours without shelter (in extreme heat or cold), 3 days without water, and 3 weeks without food.



Nature Myth: Moss always grows on the north side of a tree.

This is false! Actually, moss can grow on all sides of a tree, but usually prefers the shadiest and wettest side.

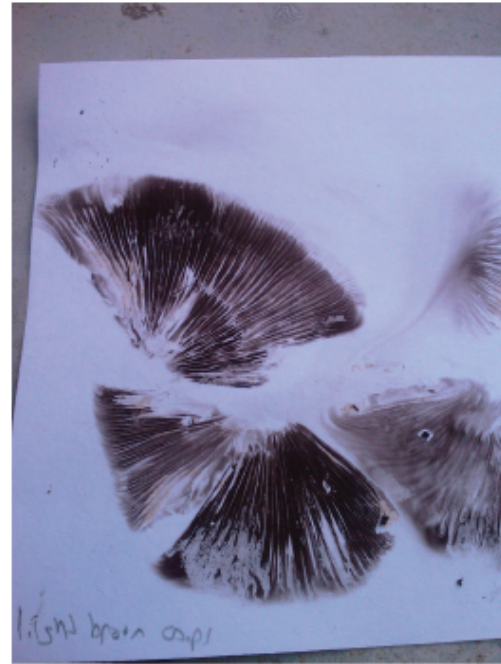
FUNGI

T Spore Prints - All Ages!

Supplies: Mushroom, Paper, Drinking Glass, Hair Spray

Optional

Fungi, including mushrooms, reproduce by small spores which you can't see with your bare eyes. However, you can make these spores visible by creating a spore print. This is easiest with a gilled mushroom, like a portabella or shiitake mushroom. Each gill releases thousands of tiny spores. Cut off the stem and place the mushroom, gills down on a white piece of paper. Put a drop of water on top of the mushroom cap to help release the spores. Cover the mushroom with a glass and let it sit overnight. If you want to preserve your spore print, you can spray it lightly with an artist spray or hair spray afterwards. Spore prints are also used in the identification of mushrooms and can come in a variety of colors creating interesting art prints.



FUNGI

T Look for Lichen - All Ages! *Supplies: None*

Lichen is an interesting organism found on trees and rocks. It's often one of the first organisms to move into an area that has been completely cleared of life, for example after a volcanic explosion. Lichen is actually made of two organisms living together: algae or cyanobacteria and fungi. Many types of lichen growing on trees can be a sign of clean air. There are four main types of lichen that you can look for.



(a)



(b)



(c)

1. Crustose - crustlike and growing flat against trees or rocks, type a above
2. Squamulose - Small flat pebble or rock like bits growing in tight clusters, not pictured
3. Foliose- Leaflike, curly flat sheets, type b above
4. Fruticose - Freestanding branching tubes that may resemble mosses, ferns, or even corals from the ocean, type c above



FUNGI

Grow some Mold on Purpose - Ages 5+

Supplies: Ziploc Bags, Old Food (Bread, Fruit, Cheese, and a Processed Food like Chips), Water (Spray Bottle may be Useful).

Mold is a type of fungus. Millions of tiny mold spores live in the air all the time, but they thrive on old food! Mold is an important decomposer. Mold grows and feeds by chemically breaking down the cells in the food it grows on. Mold is not safe to eat and a few people do have sensitivities or allergies to mold which can make being near large amounts or breathing it dangerous. However, there are thousands of types of mold and mold is an important part of nature, helping return nutrients to the soil by breaking down dead logs, leaves, and other organic matter.

You can grow some of your own mold by spraying some pieces of food with water and leaving them for several days in closed Ziploc bags. The moisture in the bags will help the mold grow. You can check your bags about every other day. At the end of your experiment, throw the bags out without opening them to avoid any exposure to the mold. In many cases, processed foods have preservatives which prevent mold growth. Fresh foods with less processing and less preservatives can be healthier. You can see the effect of these preservatives by comparing the mold growth on fresh foods with processed snacks.



**Millipedes,
beetles, worms,
and pill bugs are
also important
decomposers!**

GET MOVING!



Animal Movement Dice - Ages 2-6

Supplies: Dice (Large Dice are Useful, but Not Necessary), Paper and Pencil Useful

Roll the dice and then move like the animal! If you have access to large dice, you can glue an animal picture onto each of the six sides of the dice, but, if not, the game is still fun. Here are some animal movements you can use:

1. Crawl like a Bear
2. Sneak like a Fox
3. Slither like a Snake
4. Swim like a Fish
5. Hop like a Bunny
6. Fly like a Bird



Or a second set:

1. Squirm like a Worm
2. Run like a Deer
3. Go Slow like a Turtle
4. Jump like a Frog
5. Swoop like an Eagle
6. March like an Ant



Or for an around-the-world version:

1. Hop like a Kangaroo
2. Stomp like an Elephant
3. Waddle like a Penguin
4. Run like a Cheetah
5. Snap like a Crab
6. Pounce like a Tiger

GET MOVING!

Hummingbird Simon Says - Ages: 5-10

Supplies: At Least 3 People

Did you know hummingbirds are the only birds who can fly upside down? They're also the only birds who can hover! For this version of Simon Says everyone will be a hummingbird. Go ahead and start by flapping your wings (arms). Simon then calls out "Simon says ..."

- and any of the options below:
- Fly forward - Step forward
 - Fly backward - Step backward
 - Hover - Stay where you are
 - Fly left - Step left
 - Fly right - Step right
 - Fly down - Bend your knees
 - Fly up - Stand on your tiptoes
 - Upside down - Turn your palms up

Just like regular Simon Says everyone should copy Simon until he or she leaves off "Simon Says." If the direction is given without "Simon Says" first, then anyone who does the action is out.



GET MOVING!

Backyard Obstacle Course - All Ages

Supplies: Use What You Have!

Create a backyard obstacle course for some fun exercise and an excuse to play outdoors. For older kids, it can be fun to time yourself.

Here are some ideas for obstacle course features:

Hop Over - use sticks, hula hoops, stepping stones, blocks, or party streamers tied across cones

Crawl Through - use a play tunnel, legs of a patio chair, or simply tie pieces of string across some stick stakes in the ground

Balance Beam - a stick, a rope on the ground

Roll - helpful to have thick grass or a play mat

Sack Race - bags to hop in

Agility Run - pool noodle circles or cones or upside down Frisbees

Toss - bean bags or balls and bucket for a target

Kick - a ball and a net

Wading - a kiddie pool

Hurdles - can be made out of curved pool noodles

Hopscotch - sidewalk chalk

Crab or Bear Crawl - no supplies required

Health Benefits of Time in Nature

- Improves mental well-being
- Reduces blood pressure and muscle tension
- Boosts immune system
- Improves sleep



GET MOVING!

Hiking Games - All Ages!

Supplies: None

Make a nature hike even more fun with some exciting hiking games. Here are a few options:

- Animal Twenty Questions - One player thinks of an animal and the other players get 20 yes or no questions to try and guess it!
- Eye Spy - A childhood classic! One player announces "I spy something 'color'" and the others try to guess what it is.
- Close-Ups - Great for teens! One player races ahead a bit on the trail and takes close-up pictures of different nature objects. Then the other players try to find the objects.
- ABC's - For preschoolers working on learning their alphabet, practice by finding a nature object for each letter.
- Would You Rather? - Children will have fun coming up with crazy "would you rather" scenarios like Would you rather get bitten by a snake or stung by a bee? or Would you rather visit Mount Everest or the Amazon Rain Forest?
- I went on a hike and brought ...Memory Game - This silly memory game can be a lot of fun on a hike. The first player will say "I went on a hike and I brought (any object)" Then the next player will say "I went on a hike and I brought (the first object) and (a second object)" Until someone forgets one of the objects.
- Scavenger Hunts - Check out the scavenger hunts in the Explore section!



Fly a Kite - All Ages!

Supplies: Kite

Don't forget this fun classic childhood activity! Pick a day with a gentle wind and enjoy flying a kite.

INSECTS & INVERTEBRATES

Make a Bug Jar - All Ages!

Supplies: A Tupperware, Nail, Decoration Materials

Create a bug container from an old tupperware. Use the nail to firmly push holes into the lid of the container. An adult should help small children with this step. It's usually easier with just your hand, instead of a hammer. Go slowly and watch for cracking around the hole which might cause a larger crack. Make at least 4 or 5 air holes. Then you can decorate your container with stickers, paints, or permanent markers.



Fun Fact:

There are over 900,000 known species of insects in the world!

INSECTS & INVERTEBRATES

Catch Insects (+ Bug Hunt Field Notes Sheet) - All Ages!

Supplies: Container for Catching Insects, Magnifying Glass Optional

Insects are fascinating animals, and your back or front yard could be full of them! Try catching insects and putting them in a container to look at them up close. See if you can find several different kinds. Use this Bug Hunt field notes sheet to document what you find:

Bug Hunt

 # Found: Location:	 # Found: Location:
# Found: Location:	 # Found: Location:
# Found: Location:	 # Found: Location:

Some insects and crawly critters are fun to look at but aren't safe to touch. Look out for: bees & wasps, spiders, fuzzy caterpillars, ants, centipedes, and wheel bugs.

INSECTS & INVERTEBRATES

T Find Insects with a Drop Sheet - All Ages!

Supplies: Stick, White Sheet or Pillowcase

Many insects live in trees, but they can be too small or too well camouflaged to see. Place your piece of white fabric on the ground under some branches and then use the stick to firmly tap the branches above. You don't want to break any of the branches, but you do want them to really shake so that small insects will fall onto the sheet below. Then you can check out the insects underneath.

Spray for Spider Webs - All Ages!

Supplies: Spray Bottle and Water, Magnifying Glass Optional

Take a spray bottle on a nature walk and look for spider webs. Gently mist the webs. The droplets will stick on the strings and make the web visible. If you're gentle, you might get a good look at the spider as well. There are several types of webs that you can look for including orb webs, tangle or cobwebs, funnel webs, and broad sheet webs. Typically only some of the strands in the web are sticky. Spiders travel along the non-sticky strands to reach prey caught in the sticky threads. Remember not to handle spiders!



INSECTS & INVERTEBRATES

Build a Roly Poly Habitat - All Ages!

Supplies: A Container with Holes in the Top (See Make a Bug Jar Above), A Spray Bottle, Topsoil or Newspaper, Bark, Flat Rocks or Crumpled Paper

Select a container with air holes in the top like a Critter Keeper or a tupperware with small holes punched through the lid. Then cover the bottom of the container with topsoil or several sheets of newspaper. Add pieces of bark, rocks, leaves, or crumpled paper for the roly polies to hide under. You will need to keep their habitat moist by spraying it daily with plenty of water. You can find roly polies or pill and sow bugs under logs or rocks outside. They can't hurt you and are fun to hold.

In the wild, roly polies eat live and dead plant material and occasionally dead animal material. You can feed your roly polies raw slices of fruits and vegetables (like potatoes, carrots, celery stalks and apple peels), as well as, bran meal, fish food, and leaves or grass from outside. Roly polies are decomposers which is a great connection for students learning about ecosystems and food webs in school.



Roly Polies are not actually insects! Instead they're related to isopods that live in the ocean. This crab is a distant roly poly relative!

INSECTS & INVERTEBRATES



Buzzing Bee Craft - Ages 4+

Supplies: An Index Card, Scissors, Popsicle Stick, Two Pencil Top Erasers, Tape, A Piece of String or Yarn, and a Rubber Band

This craft will create a bee that buzzes when you spin it in a circle. Start by cutting the index card in half. You can color it with yellow and black stripes to look like a bee. Tape the index card to the Popsicle stick and put the two pencil top erasers on either end of the Popsicle stick. Tie one end of the string to the Popsicle stick. Finally, place the rubber band over the two pencil erasers and the Popsicle stick. Hold the string about a foot away from the "bee" and spin it in a fast circle. Make sure your spinning circle is vertical (up and down). The motion should cause your bee to buzz loudly! Did you know that the buzzing of real bees is caused by the rapid beating of their wings?



If we were to wipe out insects alone on this planet, the rest of life and humanity with it would mostly disappear from the land. Within a few months.
- E. O. Wilson

INSECTS & INVERTEBRATES

Catch Butterflies - All Ages!

Supplies: A Net, A Place Butterflies Frequently Visit

Take a net to look for butterflies. Catching butterflies can take some patience and practice. You'll want to pick a spot butterflies will visit frequently like a patch of flowers. Walk slowly and quietly toward the butterfly. Then, when you're in range, swing the net quickly. If you catch a butterfly, quickly flip the end of the net bag over the handle so the butterfly can't fly back out. Remember to let your butterfly go after you've had a chance to look at it up close. Also be careful never to touch the butterfly's wings which are covered in tiny, fragile scales.



Find Insects with a Soil Sifter - Ages 5+

Supplies: A Sand Sifter, A White Sheet or Bucket, Trowel or Shovel

Did you know that your beach toys can probably double as research tools? If your sand toy set has a sifter (a flat sheet with small holes in it), you can use it to search for insects and other invertebrates in the soil! Find a place with plenty of trees and then remove the top layer of leaves or pine needles so you can see the topsoil beneath. Now place your white sheet on the ground, scoop some soil into the sifter and shake it over the sheet. As the soil separates, you may see small critters either in the sifted soil on the sheet or caught in the sifter too large to fit through the holes. Beware of handling red centipedes, spiders, or ants!

INSECTS & INVERTEBRATES

Draw an Insect - Ages: 7+

Supplies: Paper, Pencil

Not every small critter is really an insect. Some, like spiders, centipedes, and roly polies, are other types of invertebrates (animals without a backbone). Real insects like ants, bees, butterflies, beetles, and even praying mantises all have certain specific body parts. Can you draw an insect with all the body parts below?

- 3 Body Parts
- 6 Legs
- Antenna
- 2 Compound Eyes
- 1 or 2 Pairs of Wings (Only in Some Forms Though)



A Build a Crawl through Spider Web - Ages: 4-10

B C Supplies: Masking Tape

This is a fun activity to set up inside on a rainy day! Use a roll of masking tape to turn a hallway or a door frame into a life size spider web that kids can climb through. Make sure you use painter's masking tape to avoid damaging your paint. The goal should be to never touch the sticky web, which will also help avoid pulling the tape down.

INSECTS & INVERTEBRATES

Termite Parade - All Ages!

Supplies: Paper, Ink Pen, Termites

Look under logs in your yard for some white termites. They look like tiny white ants. Termites can't see so they navigate by smell! They follow certain scents or pheromones, which are chemicals that other termites secrete. Many types of ink pens mimic these pheromones. This means that if you place several termites on a piece of paper and draw an ink line on the paper, the termites will follow that line on a termite parade!



A Move like an Insect - Ages 3-6

B C Supplies: Dice

Try moving like an insect while practicing numbers with this fun dice game. Here are some insect movements to try:

1. Fluttering like a butterfly
2. Blink like a firefly (fingers pinched and then open.)
3. Jump like a cricket
4. Buzz like a bee (buzz like a bee and flap your arms.)
5. March like an ant
6. Crawl like a beetle

INSECTS & INVERTEBRATES

Roll a Log - All Ages!

Supplies: A Log

Fallen logs are a great place to find insects and other animals like worms, frogs, millipedes, snakes, or salamanders. However, you always want to roll logs safely! There are two important rules for safely rolling a log:

1. Always look where you're putting your fingers. Never wrap your fingers around the bottom of a log, where you can't see what you're touching.
2. Always roll the log towards you. That way the log will be between you and any animals underneath. If an animal wants to escape, it will head away from you.



Act Out a Butterfly Life Cycle - Ages 4-8

Supplies: None

Learn the stages of a butterfly's life cycle with this short movement activity. You start out as the egg and grow up into a butterfly!

1. Be an egg. Curl up into a ball.
2. Become a caterpillar. Crawl along the ground on your belly.
3. Form a chrysalis. Sit up with your knees to your chest and your palms pressed together above your head.
4. Become a butterfly. Stretch your arms out and flap them like wings.



INSECTS & INVERTEBRATES

Insect Pollinator Word Search - Ages 5+

Supplies: Pencil, Word Search Below

Many insects like butterflies and bees are important pollinators! Check out the word search below.



Insect Pollinator Word Search



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

ANT

BAT

BEETLE

BUMBLEBEE

BUTTERFLY

FLY

HONEYBEE

HUMMINGBIRD

MOTH

THRIPS

WASP

**Two of these animals are actually not insects.
Do you know which ones?**

Answer: Bat and Hummingbird

NATURE AT NIGHT

Attract Moths - All Ages!

Supplies: White Sheet, Bright Light or Flashlight (Black Light Optional)

Hang up a white sheet in your yard and shine a bright light on it. Wait until dark and moths will start to appear. If you have a black light, that will help you attract even more types of moths. You can also put out some moth bait made with brown sugar, beer (stale is better), overripe bananas, and molasses. Check out the full recipe: <https://www.thoughtco.com/sugaring-for-moths-1968277>.



Owl Calls - All Ages!

Supplies: None

Listen for owls outside. Three common owls in our area are the barred owl, the great horned owl, and the screech owl. You can also try making some of your own owl calls.

Barred Owl: "Who cooks for you? Who cooks for you all?"

Great Horned Owl: "Hoo-Hoo-Hoo-Hoo", often with a more varied rhythm than barred owls.

Screech Owl: High pitched whiny followed by a trill



NATURE AT NIGHT

Test your Night Vision - Ages 4+

Supplies: Paper in Many Colors

It's difficult to see colors at night. Try looking at different colored pieces of paper inside in the light and then again outside after your eyes have adjusted to the darkness. Notice which colors are hard to tell apart. This happens because our eyes have two types of photo-receptors: rods and cones. The cones see detail and color well, but the rods work best in low light and only pick up large shapes and movement. Nocturnal animals, like owls have more rods in their eyes.

Why Pirates Wore Eye Patches - Age 4+

Supplies: A Candle and Matches or Lighter, Eye Patch Optional

Try this experiment to learn why pirates wore eye patches. Sit outside and let your eyes get used to the darkness. Then cover one eye with your hand or an eye patch and have an adult light a candle. Watch the candle with one eye for at least 5 mins.



This is a fun time for a pirate story! I like to tell one about how two pirates were fighting. Pirate Rough's crew boarded Pirate Smart's ship, but Pirate Smart goes below deck to wait. When Pirate Rough breaks down the door, he can't see in the sudden darkness. Pirate Smart has an eye patch though and switches the eye patch to her other eye. It can take our eyes more than half an hour to fully adjust to darkness, so Pirate Smart can see much better than Pirate Rough and wins the fight!

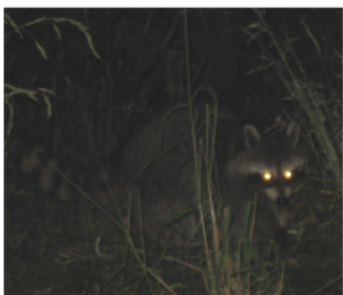
Now blow out the candle. Is it hard to see? Move your hand to cover your other eye. You should be able to see much more clearly with the eye you kept covered!

NATURE AT NIGHT

Look for Eye Shine - All Ages!

Supplies: None

Many nocturnal animals have a tapetum lucidum, which is a shiny layer in the back of their eyes that helps reflect any extra light back to the light receptors in their eyes. Since they're active at night, nocturnal animals often have to use every little bit of light they can. The light reflected by the tapetum lucidum causes eye shine, which makes the animals' eyes visible even when the rest of the animal is obscured in darkness. Different animals have different colors of eye shine including red, yellow, white, and even green. Look near the ground to see eye shine from frogs or toads or up in the bushes and back in the trees to see deer, raccoons, foxes, or coyotes.



Can you see this raccoon?

Stargaze All Ages!

T *Supplies: None Needed! Binoculars, Red Flashlight, and Star Guide All Optional*

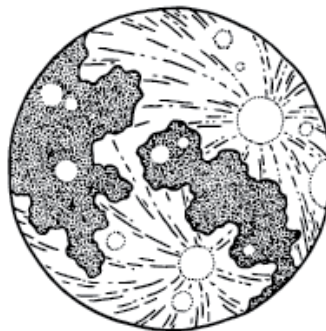
You don't need a telescope to stargaze! In fact, for beginners it can sometimes be easier to stargaze without a telescope. You can use binoculars if you have them, but you don't need any supplies to have a fun time stargazing. Look for constellations like Orion or the Big Dipper. There are even five planets you can see with your naked eyes: Jupiter, Saturn, Mercury, Venus, and Mars. Free star guides are available online to help you know what to look for. A red flashlight can also be useful for preserving your vision when you have to use a light. You can make one by rubber banding a sheet of red cellophane over the top of a flashlight.

NATURE AT NIGHT

A Look at the Moon - All Ages!

B C *Supplies: None, Binoculars Optional*

There's a lot to be learned just from observing the moon. Can you see craters? How about the large dark regions known as Lunar Maria which were formed by solidifying molten rock? The Lunar Maria are sometimes referred to as the man on the moon or the moon rabbit. What does it look like to you? You can also discuss the phases of the moon, the rotation of the moon around the Earth, the Apollo mission, and other space explorations. You can use binoculars or a telescope, if you have one, but there's plenty to observe with the naked eye.



Flashlight Constellations - All Ages!

Supplies: Flashlight, Cardboard, Muffin Cups, or Cardstock Cut in Circles, A Pencil or Sharp Point, Rubber Bands, Tape, or Sting

Create your own constellations by creating small holes in cardboard circles and then taping the circles over the front of a flashlight. You can use real constellation patterns or invent your own creative constellations. Muffin cups can be secured to the flashlight with rubber bands rather than tape, making it easier to switch out between constellations. You can also buy wooden constellation coins like the ones in the picture.

NATURE AT NIGHT

Play Bat/Moth (Marco Polo) - Ages 5+

Supplies: Blindfold, At Least 2 Players

Teach kids about echolocation with a fun variation of Marco-Polo! First, pick a confined space clear of obstacles that might injure a blindfolded player. The "bat" will be blindfolded and must call out "bat." Each time "bat" is called, the other player (the moth) must respond "moth." The bat tries to tag the moth. The game ends after a set period of time or when the bat tags the moth. If there are more than two players, the extra players can be trees who serve as boundaries of the playing area and alert the bat if he/she is close to going out of bounds by saying "tree."

T Paint a Galaxy - Ages 5+

Supplies: Black Paper, Paint Brush, Sponge, Paint (Preferably Dark Blue, Purple, Dark Red, Yellow, and White), Paper Plate for a Palette

This fun, easy art project is great for a wide age range! Using a limited palette of colors with mainly dark blues and purples, paint a galaxy. You can include spirals, star bursts, or galactic clouds. After painting the main features, blend the edges with your brush or a sponge. Finally, flick white dots across the scene by dipping your brush in white paint and then tapping the brush against your finger.



NATURE AT NIGHT



DIY a Constellation - Ages 4+

Supplies: Black Paper, Star Stickers Optional, White/Yellow Chalk or Colored Pencils

Create your own constellation! Place or draw stars across your paper and then connect them with lines. You can use a mix of white, yellow, and silver stars to have extra bright stars or planets marking significant points in your constellation.

T Listen for Frog Calls - All Ages!

Supplies: None

Dusk is a great time to look for frogs and toads, especially if there's been a recent rain. Some of the common frogs in our area include Fowler's and American Toads, Spring Peepers, Green Frogs, Bullfrogs, Green and Grey Tree Frogs.



Make Craters - All Ages!

Supplies: Flour, A Container with a Flat Bottom, Round Objects of Various Sizes

Fill a flat bottomed container with flour and place it on the ground. You may want to cover the ground with a towel or old newspaper to prevent any flour from escaping the container. Then standing over the bin, drop objects of different sizes into the flour. Real craters formed by meteors can be up to 20 times larger than the size of the impacting object, because of the high velocity at which the meteor is traveling. Heavier objects (with more mass) also cause larger craters.

PLANTS

Find your Tree - Ages 5+

Supplies: Blindfold, At Least 2 People

Blindfold one person. You can use a folded bandanna or an old T-shirt as a blindfold. Then leading that person gently by the hand and avoiding any obstacles, lead the blindfolded person to a tree. Let him or her stand at the tree for several minutes. It's important to focus on using all the senses. How does the tree bark feel? What can you hear in this location? Is the ground flat here? Are the leaves wet or dry, smooth or prickly? Then lead the blindfolded person back to the starting place and remove the blindfold. He or she should try to find the tree they were at. Then you can switch roles and blindfold the other person to play again.

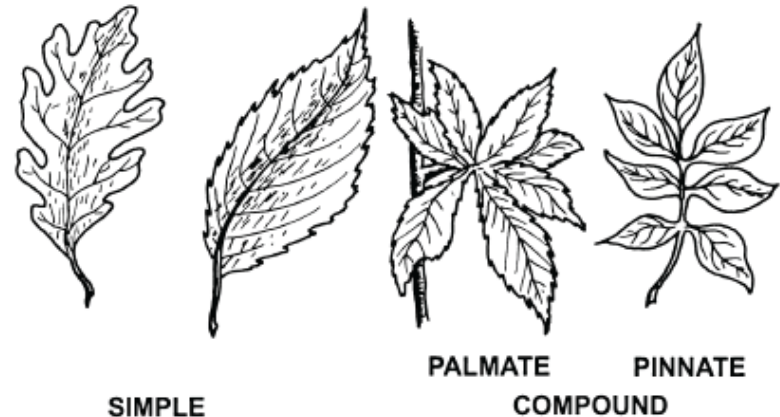


PLANTS

Find & Identify Leaves - Ages 5+

Supplies: Internet Access or ID Guide, Camera is Useful

Anyone can learn to identify leaves with a little practice. If you don't have an ID guide book, take pictures of the leaves outside and then use ID guides on the internet. Some useful sites include the Arbor Day Foundation, Leaf-ID.com, or the NC State Extension Tree Identification Guides. A few things to consider when you're trying to identify a tree: Is it a needle tree or a broad-leaf tree? Are there any visible fruits, flowers, or nuts? What does the bark look like? Is this tree likely native to NC or could it be an ornamental planting placed here by people? Can you tell if the leaves are simple or compound? Is each leaf on its own stem or are they connected like on ash or hickory trees? Look at the shape of the leaves, including the edges of the leaves and the variation between different leaves on the same tree. Do most leaves emerge from the branch directly opposite each other or are they spaced in an alternating pattern? Native opposite trees include: maples, ashes, and dogwoods.



PLANTS

T Create a Flower Press - Ages 5+

Supplies: Heavy Books, Paper, Flowers, Tweezers Useful

Place each flower between two pieces of paper and place them within the pages of the book. Make sure you use a heavy book like a dictionary or a phone book. If you place multiple flowers in the same book, make sure you space them out so the moisture from one flower can't reach the others. Close the book and place several other books or weights like bricks on top of the stack. Every few days you'll want to check on your flowers and change the paper. In two or three weeks, the flowers should be completely dry and you can carefully remove them. Tweezers can be helpful or you can use your fingers very gently.



You can use your dried flowers to make cards, bookmarks, art, or even jewelry.

Whittle with a Potato Peeler - Ages 8+

Supplies: A Good Quality Vegetable Peeler, Twigs or Branches, Sandpaper is Useful, Band-Aids Just In Case!

Make sure an adult is supervising, but this is a great way for kids to practice early knife skills. You will need a good quality peeler as the cheap ones frequently break. Choose a branch that's fairly straight, without too many knots. You can practice on a bar of dry soap or vegetables to get the hang of it. Then find a good spot to sit and focus. Use the vegetable peeler to scrape away from you. Scrape just a little bit of wood off at a time! Whittling takes great patience. Make sure not to hold the peeler by your legs or knees and not to walk, while you're whittling. Some great projects for beginners include marshmallow roasting sticks and magic wands. Garden plant stakes, hiking sticks, and slingshot bases are also good options!

PLANTS

Plant an Experiment - All Ages!

Supplies: Two Seeds or Young Plants in Small Pots

Create an experiment with a real comparison of growing conditions. Put one seed in the light and another in the dark or one seed in dry soil, while providing another with water. Make a hypothesis in the beginning and record the effects on the plants over time.

Herb Study - All Ages!

Supplies: Various Herbs

Herbs can be fascinating plants to learn about. Young children can start by exploring the different smells and textures of fresh and dry herbs. You can make a fun game by covering the labels on various spice and herbs containers in the kitchen and trying to identify them by smell alone. Make herbal sachets with scraps of fabric tied around some of your favorite herbs and use them in place of potpourri. Experiment with recipes where you can add herbs to butter or tea. You can also look online for recipes using herbs in bath bombs, toothpaste, and homemade lip balm.



PLANTS



What's in your Kitchen? Thank a Pollinator! - Ages 5+

Supplies: Kitchen Food

Did you know that an estimated 1 out of every 3 bites of food we eat requires pollinator animals like bees and butterflies? Look through the ingredients lists on some of your favorite foods and see what you can thank pollinators for.

Here's a list of crops that depend on pollinators:

Honey

Apples, peaches, plums, cherries, bananas, mangoes, apricots

Grapes, melons, kiwis, nectarines, pears, coconuts

Strawberries, blueberries, blackberries, cranberries

Onions, potatoes, avocados

Almonds, cashews, and walnuts

Kidney beans, green beans, and lima beans

Coffee and tea

Vanilla and cinnamon

Canola, sunflower, palm and sesame oils

Tomatoes, cucumbers, carrots, and celery

Cauliflower, broccoli, cabbage, turnips, and Brussel sprouts

Sugar, chocolate, agave, and pumpkin

Chili, red, green, and bell peppers



That's not even a complete list! It goes on and on, including alfalfa which is used as livestock feed for dairy cows and many of the animals we eat. According to the EPA 1000 out of 1200 common crops are pollinator dependent, so it might be easier to list the things we eat that aren't thanks to pollinator animals (wheat is pollinated by wind). Try to plan a picnic using only non-pollinator foods to see how much you'd really miss those bees and butterflies, if they were gone!

PLANTS

A What's in your Kitchen? Thank a Plant! - Ages 4-10

B C Supplies: Kitchen Food, Paper, Pencil

Have a kitchen scavenger hunt and write down everything that comes from plants. Kids can discover that it's not just fruits and vegetables, but pizza sauce, beans, chocolate and more! Take it a step further by researching where each of these plants grows. Can you eat a meal from five different continents? What about a meal from only the US? Only NC?



Collect Seeds in the Yard - All Ages!

Supplies: Bag or Basket

Try to find as many seeds as you can! Look for seeds that are transported by wind like dandelion seeds and maple seeds, as well as, seeds transported by wildlife like the seeds in berries. Don't forget about the seeds inside pine cones, acorns, and nuts. You might even find a seed that sticks onto your clothes. Remember to be careful where you put the seeds when you're done. They might grow!

Fun Fact:
An average size tree can
provide enough wood to make
170,100 pencils.

PLANTS

Find the Seeds in Fruits and Vegetables - Ages: 4-8

Supplies: Fruits and Vegetables, Knife (Either have an Adult Help or Use a Plastic Knife for Safety)

Our food is full of seeds! Can you find the seeds inside an ear of corn, a tomato, a bell pepper, or a pea pod? What about an orange or an apple? What foods, like potatoes, can't you find the seeds in? This is a great learning opportunity for reviewing the parts of a plant and where our food comes from.



A Seed Mosaics - All Ages!

B C *Supplies: Bird Seed, Liquid Glue, Card Stock or Construction Paper*

You can create art with seeds! Try making an animal or a flower design. To make a seed mosaic, all you need is glue and a supply of seeds like a bag of bird seed, dry beans, or sunflower seeds. It is helpful to use liquid glue as opposed to a glue stick to make sure larger seeds stay glued on. Also it can be helpful to use a thicker sheet of paper like card stock or construction paper, because the glue and seeds will be heavy and may tear regular printer paper.

PLANTS

Diagram of a Seed / Seed Dissection - All Ages!

Supplies: Lima Bean, Kidney Bean, or Other Large Dry Bean; Water to Soak the Seed In; Seed Diagram Picture

Let's take a look inside a seed! Soak some large dry beans - lima beans or kidney beans work well - in a container with water overnight. The next day, take the bean out of the water. Now begin to take your seed apart. You may need to use your fingernails to peel off the outer layer (the seed coat). There are three main parts of a seed. Try to find all three parts as you dissect your seed!

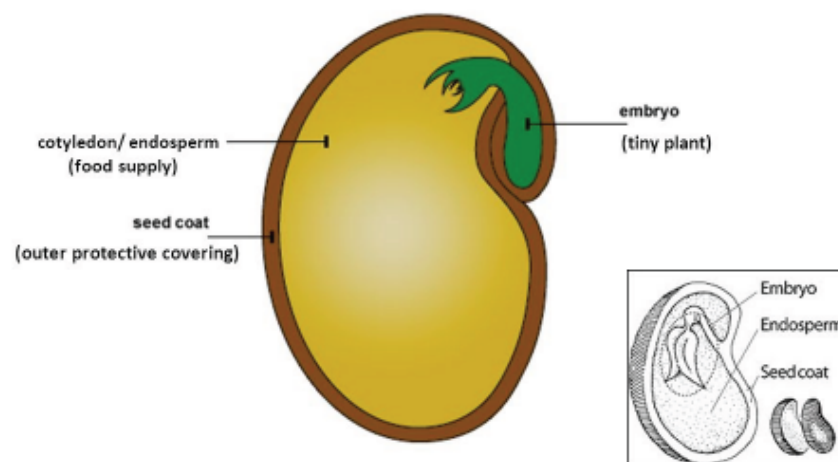
Seed Coat: the "skin" that protects the seed until it's ready to grow

Embryo: the "baby plant" (Can you see the little leaf and root?)

Cotyledon: the food storage (This gives the seed energy to begin growing - and also gives you energy, if you ate it!).

All seeds have these parts inside them, but some are harder for us to see.

Three Main Parts of a Seed



PLANTS

View Plant Veins - All Ages!

Supplies: Celery or Cabbage Leaf, Food Coloring, Jar, Water

Watch how water gets all the way from the roots of the plant up to the leaves! Place celery or an uncut cabbage leaf in a jar of water with 4 or 5 drops of food coloring. Then check back the next day to watch the colored water traveling up the plant. Give it 3 days for the best results and use leafy young celery stalks that are uncut at the bottom. It can also be fun to compare different colors as some may be more visible than others.



Plants are solar powered air purifiers whose filter never needs replacing.
- Khang Kijarro Nguyen

PLANTS

A Make a Helicopter Seed - Ages 4+

B C *Supplies: Paper or Sticky Note, Scissors, Paper Clip*

Have you ever tried dropping a maple tree seed and watching it spin like a helicopter as it falls? That spinning helps carry the seed further from the tree, so it will have room to grow. You can make your own simple helicopter seed with a small rectangle of paper or a sticky note. Cut the sticky note in half about half way up so you have two "helicopter blades." Then put a paperclip on the uncut side to add some weight just like the seeds. Now try dropping your helicopter seed and watch it spin! Have an adult hold the seed up really high before dropping it to get an even better spin.



Plant a Flower (Extra Points, If it 's a Pollinator Favorite) - All Ages!

Supplies: Flowers, Sunny Spot, Dirt, Trowel

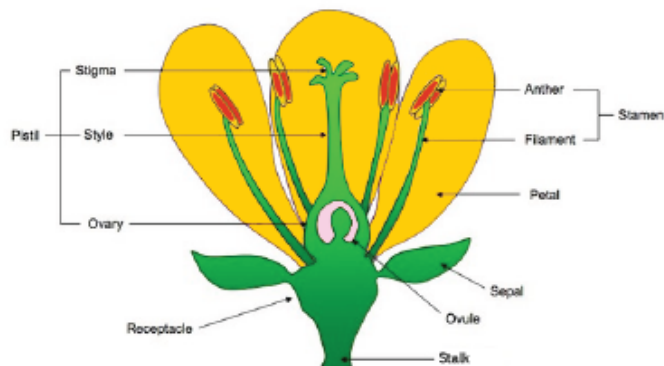
Planting a flower (or two) is a great way to get connected with nature. Pollinators like bees, butterflies, birds, and other insects that visit flowers play a crucial role in plant reproduction. Without pollinators, our grocery stores would be nearly empty! Here are a few types of flowers that attract our pollinators here in North Carolina: purple coneflower, bee balm, anise hyssop, ajuga, echinacea, lavender, cranesbill geranium, vivacious verbena, pincushion flowers, salvia, monarda, and mint, just to name a few!

PLANTS

T Dissect a Flower - Ages 10+

Supplies: Flower, Clippers or Scissors, Magnifying Glass Optional

Find a flower outside that it's okay to cut. Then carefully take the flower apart and see if you can find all the parts. Know that not every flower will have every part, so it can be helpful to cut several flowers and compare them. It's easiest to see the parts on large flowers like lillies, tulips, daffodils, and gladiolas.



Parts of a flower

Spring Ephemerals - All Ages!

Supplies: None

Many wildflowers bloom early in spring before the trees have completely leafed out blocking the sun. These early bloomers are called spring ephemerals, because they bloom quickly and then are gone. Go on a walk and look for wildflowers. Some common ephemerals in North Carolina, in March and April are:

White: spring beauties, saxifrage, toothwort, white clover

Yellow: green and gold, wood sorrel, mock strawberry, buckeye

Red/Orange: azaleas, cross vine

Pinkish Purple: henbit, common vetch, violets, pink wood sorrel (spring beauties can also be pinkish/purplish)

Bluish Purple: ground ivy, bluets, grape hyacinths, common blue violets, periwinkles

PLANTS

T Learn Some of the Products That Come From Wood - All Ages!

Supplies: None

Not only furniture and paper, but many other products come from trees! Here are some that you might be able to find in your house:

- Toothpaste - Made from cellulose gum, a natural wood product that acts as a binder creating the creamy texture.
- Citrus Flavor Soft Drinks - Esters are derived from wood rosin and used to make sure the citrus flavor is evenly distributed throughout the drink.
- Lotion - Vitamins A and E are used in many beauty products and are extracted from wood.
- Glue - Glue can be made from hard resins, a natural substance in wood.
- Dish-Washing Liquid - Soaps are made from crude fatty acids derived from wood. The lemon scent in many cleaning products and polishes comes from pine tree processing.
- Chewing Gum - Chewing gum is made from the rosin in trees.
- Cinnamon - Cinnamon is made from the bark of a laurel tree which grows in Asia. Many other spices like nutmeg and bay leaves also come from trees.
- Crayons - Carnauba wax is produced by the leaves of the carnauba tree. This wax is also used in car wax, furniture, pill coatings, and even lipstick.
- Instant Hot Chocolate - Cellulose is used as a thickening agent.
- Cellophane Tape - The cellophanes are derived from the sugars in wood extracted during the pulping process.
- Cookies - Many baked goods contain cocoa from the seeds of the cocoa tree or vanillin, an artificial vanilla flavoring, made using wood.
- Tissues - Paper including toilet paper, tissues, paper towels, newspaper, and writing paper is made from cellulose.
- Medicine - Aspirin tablets and other tablet medications are held together with lignin which is a natural glue in wood. Aspirin in particular comes from the bark of willow trees.

PRETEND PLAY

Animal Wash - Age 3-6

A
B C Supplies: Model or Stuffed Animals, A Bin, Water, Sponges or Scrubbies

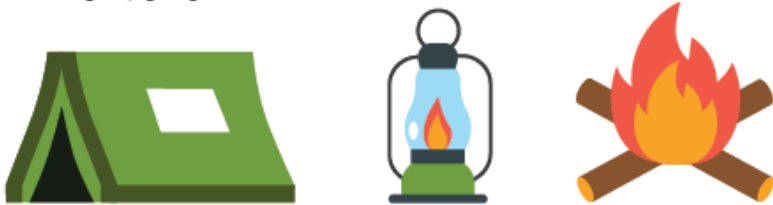
Young children will have a blast setting up an animal cleaning station. You can use plastic model animals or old stuffed animals, just make sure the cloth animals will be able to dry completely to avoid getting mold.



Camping Play - Age 3-7

Supplies: Pots, Pans, A Play Tent or Blanket/Pillow Fort, A Pretend Campfire (Can be Built with Sticks)

Set-up a pretend campsite right in your living room or a child's bedroom. If you don't have a tent, create a fort with pillows and blankets draped across chairs. Need a campfire? Use sticks from the yard and red construction paper flames. An empty pillowcase can be a sleeping bag for a teddy bear. Compasses, shovels, lanterns, flashlights, pots, pans, water bottles, and backpacks can also be great pretend play props.



PRETEND PLAY

Mud Kitchen - Age 3-7

A
B C Supplies: Any Kitchen Tools That Can Get Dirty, Mud, Water
Sometimes it's fun to get dirty! Young children will enjoy the chance to become a chef creating mud pies, dirt cake, stone soup, and more. Just be sure you're okay with all the supplies getting good and dirty!

"Feed" the Animals - Age 3-7

A
B C Supplies: Plates (Paper or Plastic)

Create some pretend meals for the squirrels, birds, frogs, and bunnies using natural materials found in your yard. Do you have wild strawberries, delicious looking dandelions, acorns, or bright green leaves? Set out plates with these delicacies and see if any wildlife take a munch.



Stuffed Animal Sorting - Ages 3-7

A
B C Supplies: Stuffed Animals, Several Large Containers or Buckets
Does your child have a zoo's worth of stuffed animals? Put those toys to good use with this fun educational game. Create three or more buckets (laundry baskets work well) labelled with different animal groups like mammals, birds, and reptiles or water, land, and trees or day time, night time, and both. Then let your child practice sorting their stuffed animals. Discuss why they place animals in different baskets to really expand the activity.

PRETEND PLAY

Build a Backyard Fort - All Ages!

Supplies: Use What You Have

Nothing is quite as fun as having your own fort to play in! Here are a few ways you can construct one:

- Hang a sheet or a blanket over a clothes line and stake the corners for a tent fort.
- Use empty cardboard boxes to build a fort. Paint them and you can create a castle, a fortress, a pirate ship, or a cosy house.
- Create a teepee out of long sticks.
- Create a lean-to survival shelter with a long stick propped against a tree. Then line smaller sticks along the sides and finally pack the top and bottom of the structure with large leaves and grasses.
- Grow a private sunflower fort by planting a circle of sunflowers. Remember to leave an entrance on one end and pick a sunny place to plant.
- Put blankets and pillows in a kiddie pool for a comfy, nest like, fort.

Have a Teddy Bear Picnic - Ages 3-6

A *Supplies: Picnic Blanket, Cups/Dishes, Teddy Bear or Stuffed*
B C *Animal*

Invite your favorite stuffed animals to a special picnic in the backyard. Set out a blanket, pour "tea," and enjoy the day outside with one of the easiest parties you'll ever host!



PRETEND PLAY

Fairy Garden - All Ages!

Supplies: None!

A Fairy Garden is a special place in a garden or a natural area decorated so that fairies will live there. Stores like Michael's sell miniature fairy figurines, tiny ceramic doors, and other fancy garden art, but the original fairy gardens were created using natural materials. Use flower petals to decorate, a smooth rock for a doorway, or an acorn cap for a table. You can create pathways with small stones or sand or use moss as a soft bed. Some children might enjoy creating a dinosaur garden with ferns or using LEGO figurines, toy cars and trains, or shiny "wizard" rocks in their gardens.



Make a Pretend Garden - Ages 3-8

A *Supplies: Lid from a Copy Paper Box or Similar, Hot Glue Gun,*
B C *Contoured Pool Noodles, Popsicle Sticks, Fabric (You can use an old towel or large shirt if you do not have fabric on hand.)*

Directions:

1. Create the Rows: Cut the pool noodles to fit horizontally within the box lid, and then glue them into place so that there is little to no room in between them. Place choice of fabric over the pool noodles at this time, ensuring that all excess fabric is pushed in between the noodles and down the sides. (You may need to cut excess pieces off.) If needed, you can pin or glue the fabric into place.
2. Create the Flowers: Use your leftover contoured pool noodles to make the flowers by cutting slices off and gluing them to the Popsicle sticks. Once finished, your child should have a fun and easy play pretend garden!

Credit to: <https://www.pre-kpages.com/> for this activity.

RELAXATION

Nature Inspired Yoga Poses - All Ages!

Supplies: Yoga Mat or Towel Optional, Internet Access Optional

Try some nature-themed yoga poses!

The Sun: Stand up tall with your feet together. Put your palms together over your head.

A Tree: Stand on one foot with your arms out.

A Frog: Bend down, stick your knees out, and push your hands together.

A Seed: Child's Pose - Lay on the ground in a ball with your forehead on the ground and your arms by your sides.

A Butterfly: Put your heels together and pull your feet close to your body. Push your knees down with your elbows.

A Flower: Put your heels together then reach your arms through your legs and clasp them together.

A Coyote: Downward Facing Dog - Heels on the ground, palms on the ground, try to keep your legs and arms straight.

Get more ideas and pictures of the poses here:

<https://www.kidsyogastories.com/kids-yoga-poses/>



RELAXATION

Rock Maze - All Ages!

Supplies: Rocks

Traditional rock circles were used for meditation. People would slowly walk into the circle, turning their mind inwards as they walked. Then pause in the center for several minutes to reflect in silence, before slowly returning to the outside world, while exiting the circle. Traditional rock labyrinths had only one exit and entrance path, but it can be fun to create mazes as well.



Meditation - All Ages!

Supplies: None!

Meditation can be a great way to slow down, reflect, focus, and reduce stress or anxiety. When first trying meditation don't feel that you must be able to clear your mind of thought completely. Instead focus on slow and steady breathing and when your mind wanders just note it and bring your attention back to your breath. It can be helpful to sit or lie in a comfortable position outside in nature in a place with few distractions.

Sometimes it's also useful to have an object to meditate upon. Try choosing a special stone and meditating while holding the stone in your hands. Think about how long the stone has existed or what the stone means to you. You can try to internalize the traits of the stone, feel yourself becoming strong, sturdy, or still like the stone. The most important thing is to stay in the moment and not let your mind dwell on worries about events of the past or future.

RELAXATION

Nature Poems - Ages 5+

Supplies: Pencil and Paper

There are so many amazing examples of nature poetry to read and enjoy. Kids can also have fun creating their own nature poems. Some simple ideas to get started:

Name Poems - Write the name of something in nature vertically with one letter on each line. Then write words describing the object that start with each of the letters.

Couplet- Two rhyming lines often with a whimsical or humorous nature. Check out Kilmer's at the bottom of the page.

Poetry for the Seasons - Write four short verses each describing a different season.

Metaphor Poems - Title the poem a nature object and then don't mention the object in the rest of the poem. Instead, describe that object with metaphors.

Five Senses - Try to use all five senses in a poem.



*I think that I shall never see
A poem lovely as a tree.
- Joyce Kilmer*

RELAXATION

Take a Quiet Listening Walk - All Ages!

Supplies: None

Nature is a place for quiet reflection and peace of mind. In fact, time spent in nature has been scientifically shown to reduce stress and promote feelings of contentment. Take a relaxing walk while listening to the sounds of nature. You may hear bird calls, frog calls, insect noises, a babbling brook, or just the wind in the trees. Pay attention to these sounds. They are a part of our daily experience that we often overlook!

Why is Nature so Effective at Reducing Anxiety and Stress?

- Nature presents lots of mild stimulation instead of a few attention demanding electronics.
- Being in nature helps people feel part of the larger world and gets rid of the feeling of being stuck in your own head.
- Just the view of green spaces from a hospital window has been shown to help patients recover more quickly and request less pain medication.

*There is something infinitely healing
in the repeated refrains of nature.*

-Rachel Carson

ROCKS

A Paint a Pet Rock - All Ages!

B C Supplies: A Rock, Paints, Brushes

Have fun creating a pet that needs no care or maintenance! You can use googly eyes, bits of yarn for hair, or a feathery tail or you can stay traditional and just paint your rock.

T Test Rock Hardness - Ages 7+

Supplies: A Steel Nail, A Knife or a Glass Plate, A Copper Penny, A Finger Nail, Rocks or Minerals

Moh's Hardness Scale is used to determine the hardness of minerals and rocks. The basic idea is that if a mineral is harder than another mineral, it can be used to scratch the softer mineral.

- If you can scratch the rock with your fingernail, it is a 1 or a 2 like Talc or Gypsum.
- If you can scratch the rock with a copper coin, it is a 3 or below like calcite.
- If you can scratch the rock with a knife or glass, it is a 5 or below like apatite or fluorite.
- If you can scratch the rock with a steel nail it is a 6 or below like feldspar.

Mohs Hardness Scale			
	Mineral Name	Scale Number	Common Object
↑ Increasing Hardness	Diamond	10	
	Corundum	9	Masonry Drill Bit (8.5)
	Topaz	8	
	Quartz	7	Steel Nail (6.5)
	Orthoclase	6	
	Apatite	5	Knife/Glass Plate (5.5)
	Fluorite	4	
	Calcite	3	Copper Penny (3.5)
	Gypsum	2	Fingernail (2.5)
	Talc	1	

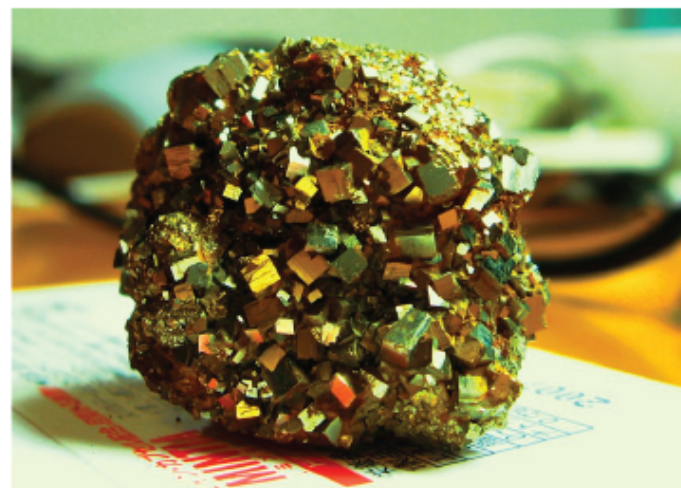
ROCKS

T Make Mineral Mosaics - Ages 7+

Supplies: Paper, Scissors, Glue Stick

Many minerals form distinctive crystal structures. For example, Pyrite (Fool's Gold) and Halite (Salt) form cubes. You can make mineral mosaics by cutting small pieces of paper in the shape of the faces of these crystal structures and then gluing them into decorative patterns.

Mineral	Crystal Shape	Flat Crystal Faces
Pyrite	Cubes	Squares
Halite	Cubes	Squares
Diamond	Octahedron	Triangles
Calcite	Rombahedron	Rectangles & Squares
Quartz	Hexagonal Prisms w/Points	Rectangles & Triangles
Beryl	Hexagonal Prisms w/o points	Hexagons & Rectangles



This is pyrite or fool's gold. One way it can be distinguished from real gold is by the distinctive cubic crystals.

ROCKS

NC Features: Coastal Plains Geology



The coastal plain is the largest geological region in NC covering 45% of the state. The geology in this region is shaped by a network of rivers and streams carrying water and sediments from the mountains to the coast. You can find many sedimentary rocks in the river beds, as well as sand, clay, limestone, and phosphate. Several white quartz veins, like the picture above, also run through the state. The quartz rock is harder than many surrounding soils and can be fun to look for on walks.

Start a Rock Collection - All Ages!

Supplies: A Box or Recycled Egg Carton

Start a rock collection of your own. All you need is a box or a recycled container like an empty egg carton. Don't worry, if you can't identify every rock you find! Instead, look at the diversity of rocks you can collect! Can you find hard, soft, shiny, dull, white, black, brown, smooth, and bumpy rocks?



SCHOOL OUTSIDE: MATH

Explore Symmetry by Painting a Butterfly - Ages 6+

Supplies: Paper, Ruler, Acrylic Paint, A Brush

Draw a line down the middle of your paper with a ruler. Then staying on one side of the paper, paint half a butterfly. Use a thick coat of paint and bright colors. Then fold the paper in half so that the paint is pressed onto the other side of the paper. Your butterfly has two symmetrical sides, each a mirror image of the other.

Symmetry Scavenger Hunt - Ages 7+

Supplies: None

Did you know that symmetry is everywhere in nature? Leaves, flowers, feathers, and shells can all have lines of symmetry. Many objects have multiple lines of symmetry and some have rotational symmetry creating spirals like the picture here. See how many examples of symmetry you can find in nature!



Fractals in Nature - Age 10+

Supplies: None

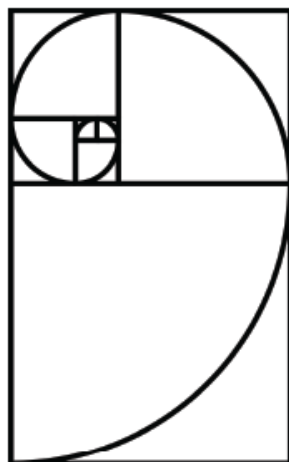
Fractals are repeating patterns where each section has the same structure or shape even though the size may vary. Many examples of fractals exist in nature including flowers, grasses, branching trees, crystals, ferns, and even snowflakes. Go on a walk and look for as many examples of fractals in nature as you can find!



SCHOOL OUTSIDE: MATH

T Golden Ratio - Age 11+ Supplies: Internet Access

The golden ratio is a special number approximately 1.618 which is created when the ratio between two numbers is the same as the ratio between the sum of the two numbers and the larger number. While that might sound pretty mathematical, the golden ratio appears in art, music, and nature! Check out the golden ratio between the sections of the shell shape here. Do some research and see how many different examples of the golden ratio you can find in nature? What do you think causes this magic ratio to appear so frequently in nature and art?



A **B** **C** Jump like a Frog! - Ages 4+ Supplies: Measuring Tape

See if you can jump as far as a frog! It helps to lift your knees and swing your arms. Remember where you land and measure how far you jumped. Here's how far frogs can jump:

- Southern Toad - 1 Foot
- Spring Peeper - 2 Feet
- Gray Treefrog - 3 Feet
- Green Treefrog and Green Frog - 4 Feet
- Northern Cricket Frog - 5 Feet
- Bullfrog - 6 Feet



SCHOOL OUTSIDE: MATH

T More Stars in the Galaxy or Grains of Sand on the Beach? - Ages 13+ Supplies: Pencil and Paper, Knowledge of Exponents

Are there more stars in the universe or grains of sand on a beach? How about trees on Earth or stars in the Milky Way Galaxy? Try to put the quantities below in order and discover the real scale of the universe. Note that the ^ symbol is used for exponents.

Quantities	Estimated Number
Trees on Earth	3 Trillion
Grains of Sand on Earth	7.5×10^{18}
Stars in our Galaxy	100 Thousand Million
Stars in the Universe	10^{21}
Humans on Earth	7.8 Billion
Bacteria in a Human	3.8×10^{13}
Insects on Earth	10^{18}
Planets in our Galaxy	100 Billion
Planets in the Universe	10^{25}



A **B** **C** Pattern Snakes - Ages 4+ Supplies: Paper Plate, Scissors, Markers or Crayons, String, Tape

Cut your paper plate in a spiral to create a hanging snake. Then add some math practice by decorating the snake in a repeating pattern like red, orange, black, red, orange, black. The pictured, order-able version is from Baker Ross, but it's simple to create your own snake at home. You can also look at pictures of real snake patterns for inspiration.



SCHOOL OUTSIDE: MATH



Tree Math: Find the Height of a Tree - Ages: 8+

Supplies: Measuring Tape

Method 1: The simplest way to find tree height is to estimate by looking at the tree from a distance or comparing it with surrounding structures whose height is known. Children can do this initially and it will help with estimating sizes.

Method 2: This relies on trigonometry and the fact that if you view a tree top at a 45 degree angle, then the height of the tree is equivalent to the distance that you are from that tree. Walk away from the tree, but at regular intervals bend forward and look through your legs back to the tree. Stop when you are at a point where you can see the top of the tree and measure the distance along the ground from the tree to you. This is roughly equal to the tree's height.

Tree Math: Measure the Circumference and Diameter of a Tree

Ages: 10+

Supplies: Tree, Measuring Tape

In geometry, a circumference is the distance around the edge of a circle. You need to know the diameter of a circle in order to find the circumference. Foresters always measure the diameter of a tree at 4.5 feet above the ground. This measurement is called "Diameter at Breast Height" (DBH).

To see why it is important for foresters to measure at the same place in the tree each time. Pick a tree and measure the circumference at the following heights: 1, 2, 3, 4, and 5 ft. Are the numbers different? You can find the diameter of your tree by dividing the circumference you measured by 3.14. This number, also called pi, is a special number that appears in many formulas in all areas of mathematics and physics.



SCHOOL OUTSIDE: MATH

T Tree Math: How Old is Your Tree? - Ages: 7+

Supplies: Stump, Log, or Tree Cookie (Cross Section of a Tree)

Each year, a tree forms new cells, arranged in concentric circles called annual growth rings. These annual rings show the amount of wood produced during one growing season.

Parts of the Tree Trunk:

Outer Bark - protects the tree from extreme temperatures, bad weather, insects, and fungi.

Phloem (Bast) - also called the inner bark. Conveys the food-bearing sap produced in the leaves down to the various parts of the tree.

Cambium - thin layer of cells which produce phloem on one side and sapwood on the other.

Sapwood (Xylem) - the living wood in the tree through which the raw sap rises from the roots to the leaves.

Heartwood - old cells; the dead part of the tree that nevertheless provides structural strength.

Pith - central core of the tree.



Beginning in the spring, the cambium produces numerous large cells with thin walls that form the springwood. If you look at the cross section of a tree, these are the light-colored rings. Then, toward the end of the summer, the growth slows down. The cells manufactured at this time of year are small, with thick walls. They form the summerwood, which appears as a darker ring. One year of growth is therefore represented by a ring consisting of a light part and a dark part.

SCHOOL OUTSIDE: MATH

Tree Math: How Old is Your Tree? - Ages: 7+ Part 2

Life can be pretty tough on a tree! Drought, excessive rain, fire, insect plagues and disease epidemics, injuries, and air pollution all leave their mark on a tree's annual growth rings. Because their annual rings reveal the events that have occurred in our environment, trees are top-notch biological indicators!

A Few Facts about Tree Growth:

- Trees grow in three directions, down from the roots, up at the top, and wider around.
- Tree growth is not the same from spring until the end of the summer. Growth is faster in the spring.
- Also, stem elongation and diameter growth begin and end at different times, with diameter growth continuing longer.
- Not all species of trees grow at the same rate! Oaks and all other long-lived species grow slowly in our climate. Willows and aspen, on the other hand, have a short life cycle, but compensate with intense growth. Their annual rings are wider.

If you have a stump in your yard or if you have a tree cookie or log at home, you can estimate the age of the tree it came from by looking at its growth rings.

Use the sheet on the next page to figure out your tree's age!

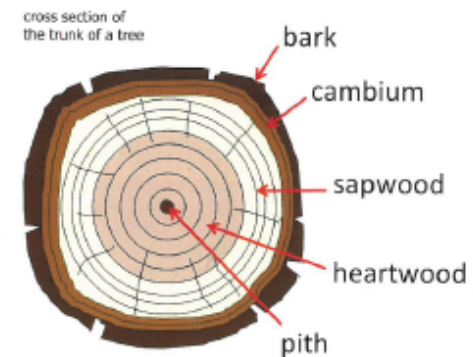


Credit to www.theforestacademy.com for much of this tree knowledge.

SCHOOL OUTSIDE: MATH

Tree Math: How Old is Your Tree? Ages: 7+ Part 3

How Old Is Your Tree?



How old is your tree?

What year did it start growing?

Does your tree ring have any noticeable scars? What could have caused them?

Find your age in the tree ring. Was it a wet year or a dry year?

Did it get easier to count the rings?

MSTR COPY

SCHOOL OUTSIDE: GEOGRAPHY & ENGLISH

Make an Animal Map - Ages 7+

Supplies: A Map of the World, Colored Pencils or Markers, Internet Access or an Animal Encyclopedia, Paper, and Pencil

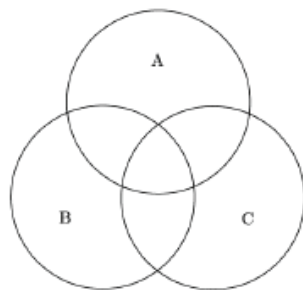
Learn geography by creating a map of the world marking the locations of different animals. Older children can color in the animals' ranges, learning about the distances whales migrate and tiny remaining ranges of species like the red wolf. If you have access to a printer, consider gluing small pictures of the different animals to their areas of the world.



Make a Venn Diagram - Ages 7+

Supplies: Paper, Pencil, Internet Access

Venn diagrams are a type of graphic organizer which allows for an easy visual comparison of the similarities and differences between two groups. Draw two (or more) overlapping circles, label each circle, put the differences in the outer circles and the similarities in the overlapping areas. Venn diagrams are a great way to learn about nature! Compare reptiles and amphibians, insects and arachnids, or bats and birds. Creating a venn diagram can stimulate research, organize the information collected, and help prompt interesting questions.



SCHOOL OUTSIDE: ENGLISH



Write a Nature Essay - Ages 10+

Supplies: Paper, Pencil, Internet Access

For students learning to write research essays, nature is full of inspiration. Here are few fun prompts that will force you to consider the issue from multiple perspectives:

- Would you eat an insect? Explore the pros and cons of eating insects.
- Should red wolves be reintroduced in NC? Why or why not?
- Do you think technology is changing our relationship with nature? If so, in what ways?
- Do you think population control would help protect the environment? Why or why not?
- If you could live anywhere on the planet, where would you choose and why?



Write a Nature Story - Ages 5+

Supplies: Paper, Pencil

Writing a creative nature story is an engaging activity for children and adults alike. Here are some thought-provoking prompts to get you started:

- Write a story from the perspective of a tree.
- Write a story from the perspective of a tadpole anxious to grow up.
- One day a child found an egg on the side of the path. It rattled and cracked and then...
- Your family is out camping. Everyone is asleep in their tent, when you hear a noise in the woods.
- One day a bird taps on your window with its beak. You open the window and the bird suddenly speaks.
- You visit the Botanical Garden and find a glowing flower! Tell what happens next.

SOIL



Worm Study - All Ages!

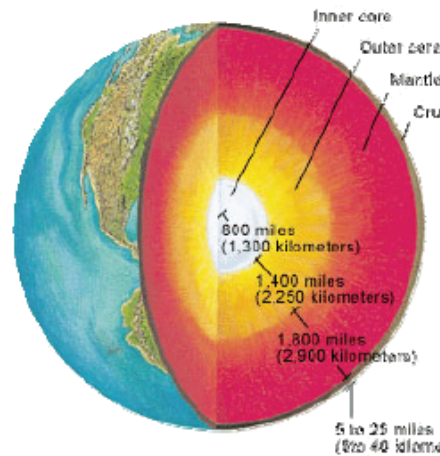
Supplies: Magnifying Glass Optional, Container or Paper Plate, Ruler Optional

Look under logs, leaf litter, or rocks in your yard to find some earthworms. Then place the worms on a plate or container to study. Look at how they move, the differences in sizes, and how they react to dark and light. Earthworms have a head with a mouth on one end. Can you tell which end is the head? Hint: It's near the pink belt! Have fun measuring the worms to look for the largest and smallest. Can you find different types of worms? Worms are important to the soil. They make tunnels which help let air into the soil. Also worm castings (poop) contain minerals, which help soil retain moisture and fertilize the soil to help plants grow.

Layers of the Earth - Ages: 5 +

Supplies: Play-Doh in 4-5 Colors, Knife (Plastic is Fine!)

Make a red or yellow ball for the inner core of the Earth. Then add each of the following layers around it, starting with the outer core, then the mantle, and finally, a thin crust layer with the continents on top. When you're finished, cut the Earth ball in half to see all the layers. If you want, use toothpicks and small pieces of paper to label the different layers.



SOIL

Layers of the Soil - Ages 6-10

Supplies: None

The soil is the top layer of the Earth. You can model the comparative size of each layer of soil in NC on your own body.

1. Start with the plants like grass growing on top of the ground, that's your hair.
2. Next the surface or humus layer from the top of your head to your eyebrows. This layer has lots of organic matter, plants and animals.
3. Next the topsoil layer from your eyebrows to your shoulders. This topsoil is important for growing things. Sometimes topsoil gets depleted by erosion, but a thick layer of topsoil makes for a healthy forest and a healthy farmer's field.
4. Next the subsoil from your shoulders to your knees. This layer has fewer roots and more pieces of stones. In central NC, this layer is usually clay.
5. Then the parent rock starts at your knees and continues down into the Earth. This is the rock that is still in big pieces, but beginning to be worn down into pieces, which will eventually be part of the soil above. Below the parent material is the solid bedrock.



Credit: I first learned this activity working at Blue Jay Point Park in Wake County!

SOIL

Sediment Jar Experiment - All Ages!

Supplies: Any See-Through Container with a Tight Lid (Empty Water Bottles Work Well), Access to Dirt, Water

The soil on our earth is very complex and interesting. Soil is made up of living and non-living materials, like trees, plants and rocks. The three main types of soil are clay, silt, and sand. Sand has the largest grains of the three. As you've probably discovered, sand is rough, gritty, and doesn't hold together, if you roll it into a ball. Silt has medium size particles. Lastly, clay particles are very small and when added to water they will float at first. You can roll clay in a ball and it will stay round, and it can harden enough to resemble rocks. Clay is often red in color. Sometimes one of these materials is prominent in an area, like sand is at the beach, and other times these three materials are all mixed together. With this project, we are going to gather at least three different samples of dirt from your yard. By placing our collections in water, we can then see the sediments arrange themselves according to size and weight over the course of a day or two.

The floating stuff on top is organic material. →

This is the clay layer! →

This is the silt! →

Not much sand visible here!



SOIL

Sediment Jar Experiment - Part 2

Directions:

- 1) Get roughly $\frac{1}{3}$ of a cup of dirt from at least three different areas in your yard. Collect these samples in a bowl and mix them.
- 2) Put your mixture into your container and fill it halfway. Add water to fill up the rest of the container, leaving a little room for air at the top.
- 3) Shake your soil and water filled container vigorously. When done your mixture should resemble thick murky water. You should not be able to see through it.
- 4) Do not touch your container again after this! Check back periodically to see where your sediments have fallen.
- 5) After 3 days, you should be able to see the layers of sand, silt, and clay arranged in that order in your container. The sand will be the bottom layer, followed by silt and then clay!



SOIL

Model Water Moving through Soil - Ages 7+

Supplies: At Least 3 People

There are three main types of soil particles. Sand particles which are big enough to see with the naked eye, silt particles which are medium size, and clay particles which are the tiniest. You can imagine their comparative sizes. If a sand particle is the size of a beach ball, silt would be the size of a golf ball, and clay the size of a marble.

Water can more easily slide through the larger spaces between the sand particles. Have two people be the soil particles and one person be a droplet of water. The soil particles should hold their hands out and position themselves far enough away that their fingertips can barely touch. The water particle can easily step through their arms. This models sand. Now the soil particles should become silt, putting their hands on their hips and positioning themselves so just the tips of their elbows touch. The water particle may be able to force its way between them, but it's difficult. Finally, the soil particles should become clay, standing shoulder to shoulder. The water droplet can't get between them. This is why a clay pot can hold water. Which type of soil do you think would be best for growing things? Most farmers prefer silt!

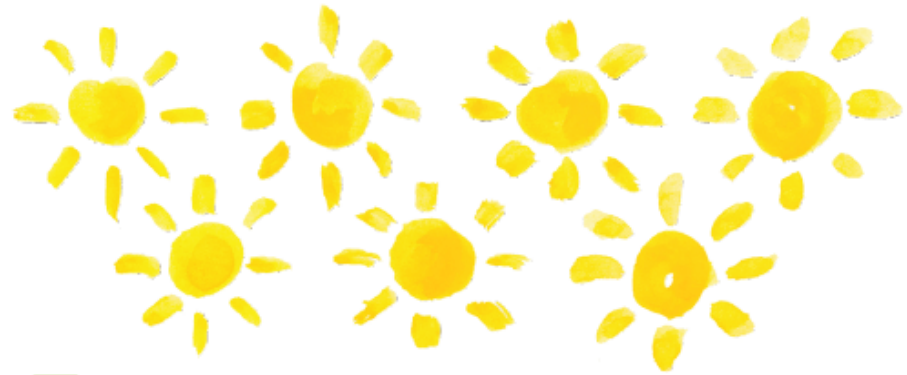


SUN

Shadow Tracing - Ages: 5-10

Supplies: Sidewalk Chalk, At Least 2 People

Find a sunny place on the sidewalk or pavement and strike a pose! Now hold it while the other person traces your shadow in sidewalk chalk. Then switch places to make a second shadow tracing. Later try again at a different time of day to see how the shadows change shape!



Water Painting - Ages 3-7

Supplies: A Bucket, Water, Paint Brush, A Sunny Day

Did you know you can paint with water? And best of all there's no mess! Set out a bucket of water on the pavement or a sidewalk in the sun and paint with the water. In a few minutes, the water will start to evaporate and your canvas will be blank again for more art!

Fun Fact:

Sun light is actually all the colors mixed together, which appears white to our eyes.

SUN

Build a Sundial - Ages 6+

Supplies: Paper Plate, Scissors, Pencil, Decoration Supplies, Compass or Compass App (Several are Available for Free Download.)

Before the invention of modern clocks, people used the sun and moon to tell time and mark the calendar. You can build a sundial clock with just a few simple supplies. Turn your plate upside down and draw a clock on the bottom. You may also want to decorate the edges. Then punch a small hole in the middle with the scissors (an adult can help with this step). Finally, stand the pencil up right in the hole. Position your sundial outside with the 12 facing straight north in a sunny place. Use your compass or a phone app to check the direction of north. Check your sundial at different times throughout the day to see the shadow moving around the clock face. As the Earth rotates on its axis, the sun appears to move in the sky and the shadow moves across the clock face keeping time!



SUN



Test Sunscreen - Ages 3-8

Supplies: Sunscreen, Black Construction Paper (Non-Sun Resistant), A Pencil

Draw a line down the middle of the black paper. Then cover your palm and fingers with sunscreen and place it firmly on one side of the paper. You should make a faint sunscreen hand-print. Place the paper outside in the sun (you may have to weight the edges of the paper down, if it's windy) and check back in a few hours. The paper will fade in the sun, but the area under the sunscreen will remain a darker black, fading more slowly with protection from the sun's harsh rays. Sunscreen protects our skin from the sun's rays too!



Fun Fact:
**Over a million Earths could fit
in the sun!**

TRACKS

Animal Track Station - All Ages!

T *Supplies: A Tray or Box Lid with Low Sides, Sand or Flour, Bait (Peanut Butter, Sardines, Dog Food)*

Want to see some real animal tracks and find out what's living in your backyard? Set out an animal track station. Spread sand or flour across the bottom of a shallow tray or box and carefully place some bait in the center of the track station. Sardines are great for raccoons, peanut butter will attract squirrels and other rodents, and you can also experiment with dog food and other baits. Set the track station out before dusk and then check it for tracks in the morning.



DIY Tracks - All Ages!

Supplies: Plaster

Look around any sandy, dirt covered, or muddy areas of your yard for an animal track. Places near water are good spots to look as are areas near food sources like bird feeders, berries, or flowers. If you find an animal track, you can create a cast of the track by mixing up some plaster and carefully filling the track with plaster. Follow the directions on the plaster container to make sure you let the cast dry completely before trying to remove it. If you can't find a track, you can create your own using a pet's pawprint or your own footprint!

TRACKS

Look for Animal Signs - All Ages!

Supplies: None

Many animals are most active at night and try to avoid being seen by humans. Sometimes it can be difficult to find actual animals to observe, but you can almost always find animal signs which give you clues about what animals are around. Scientists use animal signs to estimate the range of hard to find species, to gather information about what animals are eating, and learn how they're behaving.

Here is a list of animal signs to look for:

Animal Tracks - look in muddy, dirt covered, or sandy areas for animal footprints

Scat (The scientific word for droppings or poop!) - pellet shaped scat is usually deer or rabbits, while extra smelly scat may indicate a carnivore

Food Leftovers - chewed pine cones and nuts, seed shells, woodpecker holes in trees, partially eaten fruit or berries, chewed leaves, deer or rabbit browse, or beaver chews

Nests - big leafy squirrel dreys and birds' nests

Other Structures - spider webs, dens, holes in the ground or trees, wasp nests, bee hives, cocoons or chrysalises, tunnels in the earth or in wood, beaver dams

Sounds - bird calls, frog calls, sounds of animals scurrying or frogs jumping into the water

Body Parts - feathers, bits of fur, turtle or snail shells, eggs (especially insect eggs found under logs)

WATER

A Sink or Float - Ages 3-8

B C Supplies: Bucket, Water, Various Household Objects

Experiment with which objects will float and which will sink! Start by filling a bucket with water and selecting some objects from around the house. Try to pick some things you expect to sink, some you expect to float, and some you're not sure about. For older children, you can try putting some small objects in a floating container and getting it to sink, float, or become suspended in the water column.

A Aluminum Foil Boats - Ages 4-10

Supplies: Bucket or Bowl, Water, Aluminum Foil, Small Weights (Pennies Work Well!)

Children will have a blast building their own boats out of aluminum foil. It can take some practice to construct a shape that's broad enough, but with edges to prevent water from getting on top. Once you've got the basics you can hold a competition to see whose boat can hold the most weights before it sinks.



Water is the driving force of all nature.
- Leonardo da Vinci

WATER

A Experiment with Evaporation - Ages 3+

B C Supplies: Water, Various Recycled Containers and Bottle Caps, Marker

Make evaporation visible for young children with this fun, easy experiment. Fill various bottle caps and containers with water and place them in a sunny spot. For larger containers, make sure you mark the water level with a marker. Also use some small containers like a plastic water bottle cap or a butter tub lid. Come back in a few hours and check the water level. Let children experiment with putting the containers in different locations and using different amounts of water. Will shallow water evaporate more quickly? What happens if you cover some of the containers with plastic wrap? Older children can tie this activity into a study of the water cycle.



NC Features: Cape Fear River Basin



Fayetteville is located in the Cape Fear River Basin. The Cape Fear River is over 202 miles long and contained entirely within the state of NC. The Cape Fear River Basin is home to 22% of the state's human population, as well as 18 fish species, 13 mussels, 2 aquatic snails, and 2 crayfish species.

WATER

Leak Proof Bag - Ages 5+

Supplies: Ziploc Bag, Water, Pencils

Fill your bag halfway with water and seal it. Then make sure your pencils are sharpened to a point. Slowly push a pencil through the bag and halfway out the other side. You'll discover that you can do this without spilling a single drop. For extra fun, try pushing many pencils through one bag. Hold the bag over the sink when you're ready to remove the pencils. Do you know why this works? The plastic bag is made of long molecules called polymers which tighten around the hole where the pencil enters preventing the water from leaking out.



Walking Color Jars - All Ages!

Supplies: 6 Jars, Food Coloring (Red, Blue, and Yellow), Paper Towels, Water

Create rainbow colors to explore color mixing while also modeling the way water moves upward through a plant! Fill six jars halfway with water and place them in a close circle. Then place red, blue, and yellow food coloring in every other jar, leaving one jar of clear water between each colored jar. Roll the paper towels into tubes and bend them so that a paper towel connects each jar of water to the one next to it. Given some time the paper towels will pull water from the jars and mix the primary colors into secondary colors including green, orange, and purple.

WATER

Recycled Rafts - All Ages!

Supplies: Bucket or Bowl, Water, String, Scissors, Tape, Various Natural or Recycled Materials

Use an assortment of natural materials and recycled materials to create your own raft and then float it in a bucket of water, a kiddie pool, or a small stream.

Here are some ideas of materials you might use:

- Milk or Orange Juice Cartons
- Sticks
- Bark
- Leaves
- Rubber Bands
- Paper
- Fabric or Sheets of Plastic for Sails
- Corks
- Egg Carton
- Empty Water Bottles
- Popsicle Sticks
- Plastic Straws



Fishing for Ice - Ages 5+

Supplies: Cup, String, Salt, Ice

Place several ice cubes in a cup of water and try to fish them out with the string. You'll see right away that the ice won't stick to the string. Then lay the string over the ice and gently shake some salt on top. Now pull slowly up on the string. The ice cubes should stick and you may be able to fish out some ice. This works, because the salt melts the ice slightly. The cold water then refreezes around the string.

Credit: Modified from the blog Little Bins Little Hands

WATER

A **Make Rainbows with the Hose - Ages 4-8** **B C** *Supplies: Hose, Sunny Day*

Rainbows form when sunlight reflects through and bounces off droplets of water in the air. That's why rainbows are common after a storm ends. The sun has come out, but there's still water in the air. You can form your own rainbows by spraying a hose on a light mist in a sunny place. Kids can use the pretend name Roy G. Biv to remember the colors of the rainbow in order: red, orange, yellow, green, blue, indigo, violet.



Grow some Algae - All Ages!

Supplies: A Jar of Pond Water, A Spot by a Sunny Window, Magnifying Glass Optional

Algae are a large group of aquatic organisms which conduct photosynthesis, but don't have many of the structures of plants. You can grow some of your own algae in a jar to observe. Simply collect about half a jar of pond water and place the jar by a sunny window. In a few days, green algae may start to grow on the surface. You can observe the algae with a magnifying glass. If you don't have pond water, you can also use water from a fish tank or collected stagnant rainwater, though pond water is more predictable.

WATER

Why Don't Sharks Live in Freshwater - All Ages!

Supplies: Hard Boiled Egg, Cup of Water, Salt

Though there are a few rare species of freshwater sharks in some areas of the globe, the vast majority of shark species including the infamous great whites can only survive in salty water like the oceans. One theory explaining this has to do with the sharks' livers. Sharks lack a swim bladder, the gas filled organ which helps many fish stay afloat. Instead, sharks have extra large livers. In fact, the liver is the largest organ most sharks have with some great white shark livers weighing as much as 3.5 times the weight of an average adult male human. Maintaining buoyancy is easier in saltwater and in freshwater scientists estimate that sharks would need a liver 8 times larger than their already oversized livers.

This experiment lets you see how much easier it is to float in saltwater. Place a hard boiled egg in a glass of tap water and it will sink immediately. Then take the egg out and mix salt into the water. It takes about 3 tbsp. of salt per cup of water to make the egg float.



WATER

Clean Water Pollution (and Learn Why it's Hard!) - All Ages!

Supplies: A Bowl of Water, A Fish Tank Net or Slotted Spoon, Oil, Food Coloring, Assorted "Pollution" such as Paper Scraps, Plastic Wrappers, Dirt, Bits of Food, or Plastic Beads, a Trash Bag

Make your own tiny polluted lake and then try to clean it up to learn about the different types of water pollution! Start with a large bowl of clean tap water and then add some of the pollutants below.

- Oil (vegetable oil will work!)
- Food Coloring (for various chemicals)
- Dirt (for sediments from erosion)
- Paper and plastic scraps (for litter)
- Bits of Food (for organic wastes)
- Plastic Beads (for plastic pellets produced from plastics manufacturing)



Then use a slotted spoon or a small net to try and clean the pollution. Place the removed "pollution" into a trash bag. You should discover that certain types of pollutants like the chemicals, sediments, and oils are particularly difficult to clean up. Even small bits of plastic in great enough numbers can present a difficult obstacle for water conservationists. This can be a good opportunity to discuss how polluted water can sometimes be cleaned up using methods like boiling, chemical cleaners like chlorine, and filtration systems. However, some pollutants can remain and some cleaning chemicals like chlorine can't be used in waters where wildlife live.

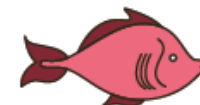
WATER



Explore Density - Ages 5+

Supplies: Honey, Light Corn Syrup, Pancake Syrup, Milk, Dish Soap, Water, Vegetable Oil, Rubbing Alcohol, A Tall Clear Glass, Turkey Baster

Carefully layer each of the liquids in the order listed above into the glass. Make sure to use identical amounts of each liquid and to pour them into the middle of the glass so the liquids don't stick to the walls of the glass. It can be helpful to use a turkey baster for the milk, dish soap, water, and oil. Add each liquid slowly and allow it to settle before adding the next layer. You can then experiment with suspending small objects at different layers in the density column. A few objects to try include a popcorn kernel, a bolt, game dice, a cherry tomato, a plastic bead, a soda bottle cap, and a ping pong ball. For students learning about density, it is important to emphasize how you added the same volume of each liquid. Only the density was different!



A Learn how Fish Breathe - Ages 4-6

B C *Supplies: Ground Coffee, Clear Glass, Rubber Band, 2 Coffee Filters*

Fish use gills to breathe underwater. There is invisible oxygen in the water and the fishes' gills absorb that oxygen from the water just like a coffee filter can remove the coffee grounds from the water. Mix coffee grounds into warm (but not boiling) water with a spoon. Then use a rubber band to cover the top of another glass with two layers of coffee filters. Pour the coffee mixture slowly through the coffee filters and children should be able to watch the water getting lighter as it passes through the filters. You can also show children the coffee or "oxygen molecules" caught in the filter.

WATER

Dip in a Pond - All Ages!

Supplies: Access to a Pond or Stream, Strainer or Net, White Bucket

There are so many exciting animals to find dipping in streams and ponds. All you need is a creek bank where you can easily access the water. If you decide to walk in a low stream or creek, remember to watch for drop offs and wear boots with no holes. Don't walk in a stream, if it might rain! You can also dip from the edge of the bank. If you don't have a net, you can use a strainer or a colander. A white bucket can also be useful to see your catches!

Here are some Animals to Look For:

Tadpoles
Fish
Salamanders
Aquatic Snails
Water Striders
Crayfish
Lots of Aquatic Insects!



Things to Watch Out For:

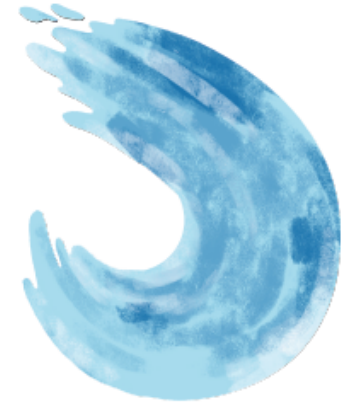
None of these animals want to hurt you, but they're best to avoid touching if possible!
Snapping Turtles
Water Snakes
Leeches (Not as scary as they sound, most can be easily removed with your fingernail.)

WATER

Model a Watershed - Ages 6+

Supplies: Paper, Washable Markers (2 Colors), Spray Bottle, Water

Crumple the piece of paper without tearing it. Then unfold it and you should have a number of ridges and valleys. Color the valleys blue and the ridges brown. These will be your rivers and mountains. Then spray the paper gently with water. The washable marker should start to run and you'll be able to see how the water travels down to the valleys. This happens in real life too! The whole area of land from which water runs into one particular river is called a watershed.



Explore Erosion - All Ages!

Supplies: A Tray, Box, or Pan, Dirt or Sand, Watering Can or Pitcher, Water

Place your pile of dirt or sand on a tray with sides. Form the dirt into mountains and valleys. Then make it "rain" with your watering can. Does the water run off the hill more quickly? Does it carry sand down the hill? Does water start to gather in valleys? Do you see rivulets and channels being carved into the slopes? All of these are real things which happen when rain erodes loose soil and sand!



Credit: I first learned the Model a Watershed activity working at Blue Jay Point Park in Wake County.

WEATHER

Tornado in a Bottle - All Ages!

Supplies: Water, Dish Soap, A Clear Plastic Bottle with a Lid

Demonstrate one of Earth's most cool weather patterns at home with easy to find materials! Creating a tornado in a bottle is simple and easy. Fill up a clear plastic bottle $\frac{3}{4}$ of the way full, and add a few drops of dish soap. If you have glitter at home, you can add a pinch or two to the mixture to help make your tornado stand out, but it'll be effective without it as well! Screw your lid on tightly, and flip the bottle over where the cap is pointing downward. Quickly spin your bottle in a circular motion for about 10 seconds or so. Stop and look inside to see if you can spot a tiny tornado forming in the water. You may need to repeat this step a few times to get it going. As you examine your tornado in a bottle, you'll see that you've created a vortex. Vortexes found in nature include tornadoes, hurricanes, and waterspouts.



Make a Weather Report - Ages 7+

Supplies: Thermometer, Compass, Craft Supplies Optional

Create your own weather report! Head outside and try to observe if there's any rain or clouds. Which direction is the wind blowing? Use your compass to help you tell which way is north. Then use a thermometer to measure the temperature. Finally, practice descriptive language skills by creating and presenting a fun weather report. Don't just say it's 57 degrees. It's sunny, bright, clear and slightly chilly today, with a mild south blowing wind and the parks are likely to be crowded. Children may enjoy making props like a map showing the weather in their area or a sun on a Popsicle stick!

WEATHER

Make a Thunderstorm - Ages 5+

Supplies: Clear Plastic Container, Food Coloring, Blue Ice Cubes. Use blue food coloring in an ice cube tray to make the ice cubes the night before!

Directions:

Fill the plastic container $\frac{2}{3}$ full with warm water.

Let the water sit for roughly a minute.

Place a blue ice cube at one end of your container.

Add a few drops of red food coloring to the other end of the container.

Watch what happens! You'll see the blue (cold water) sink to the bottom of the container and the red (hot water) rise to the top! The blue water represents cold air, and the red water represents the warm air. Warm air rises, and when there is a cold front to hasten the the process, this creates instability and frequently storms!



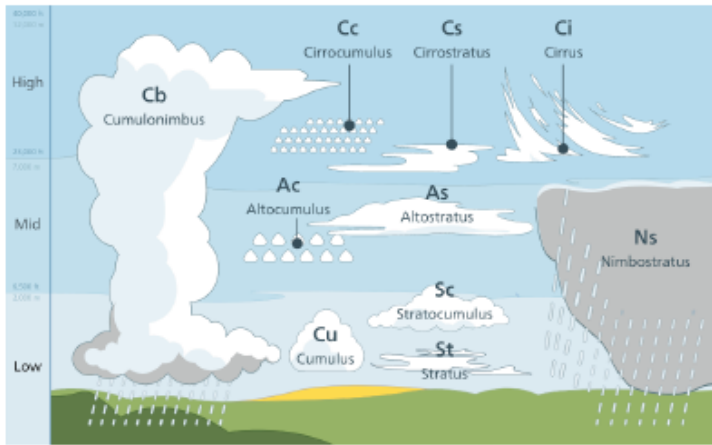
Credit: Modified from a National Center for Atmospheric Research Lesson Plan.

WEATHER

Find Different Types of Clouds - All Ages!

Supplies: None

Find a spot to watch the clouds and have fun looking for some of the types of clouds pictured here. There may also be thin contrails or clouds left by airplanes. Older children can focus on learning the types of clouds and their impact on the weather, while younger children may enjoy looking for shapes that remind them of animals or everyday objects.



Learn about Lightning with Static Electricity - All Ages!

Supplies: A Balloon

Lightning is caused by molecules in the air colliding, bouncing, and rubbing against each other causing a buildup of static electricity in the air. Rub your hands together to feel the warmth generated by friction as molecules collide. Now create your own static electricity! Blow up a balloon and then rub it vigorously for several minutes against your hair. You will be able to watch your hair standing on end!



WEATHER

Test for Air Pollution - Ages 5+

Supplies: A Plate Size Piece of White or Clear Plastic (Like a Cut Gallon Ziploc Bag), Petroleum Jelly, White Paper, Scissors, Duct Tape

Scientists test for air pollution with advanced sensors that pick up particulate matter in the air. You can build a very basic sensor with this experiment. First, cut your plastic so it's flat and about the size of a dinner plate. Then, cover one side of the plastic with petroleum jelly. Now position your sensor somewhere with good air flow and tape it in place. For example, you could tape it to the side of a fence or the side of a building. If possible, avoid locations where large objects like rocks or leaves are likely to hit the sensor. You can also make multiple sensors to compare indoor and outdoor locations. Leave the sensor in place for one or two days. Then take the sensor down and place it on a white sheet of paper to make the particulate matter visible. Look closely for any bits of matter that became stuck in the sensor. This will show you what kinds of things are in the air there. Keep in mind that scientists look for microscopic particles as well!



Credit: Modified from a lesson plan at <https://www.education.com/sciencefair/article/dirty-air/>.

SNACKS

A **Ants on a Log - All Ages!**

B C *Supplies: Celery, Peanut Butter, Raisins*

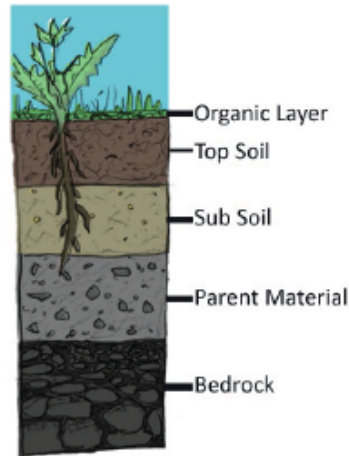
Ants on a Log is a classic children's snack made by putting a line of peanut butter across a slice of celery and then adding raisin "ants". Engage children further by asking why ants might be found near a log? Or try a peanut butter free version using sweet, honey cream cheese instead.



Dirt Pudding - All Ages!

Supplies: Chocolate Pudding, Oreos (or other chocolate cookies), Chocolate Chips, Gummy Worms

Make an edible model of soil layers! Start with chocolate chips for the parent material (large broken pieces of rock), then add the pudding for subsoil, and crushed Oreo's for the topsoil and humus layer on top. Garnish it with a few gummy worms to emphasize how many animals live in the soil.



SNACKS

Eat a Seed - All Ages!

A
B C *Supplies: Edible Seeds like Sunflower Seeds, Pumpkin Seeds, Walnuts, Popcorn, Peanuts, and Cooked Items like Beans or Peas*
Many children don't know how many wonderful seeds we eat. Have a meal of seeds and talk to children about how their food is grown. It can also be fun to look up pictures of the different crops growing and match them with the seeds we eat.



Eat All the Parts of a Plant - All Ages!

A
B C *Supplies: Carrots, Celery, Broccoli, Lettuce or Spinach Leaves, and Sunflower Seeds*

Learn about the parts of a plant while enjoying a healthy snack! Carrots are roots, celery is a stem, broccoli are flowers, lettuce or spinach are leaves, and sunflower seeds are the seeds.

Sun Sandwiches - All Ages!

A
B C *Supplies: English Muffin, Sunflower Seeds, Cream Cheese, Mandarin Orange Slices*

Create a sunny snack by covering an English muffin in cream cheese, placing sunflower seeds in the center, and then surrounding it with "rays" of mandarin orange slices. If you use canned mandarin oranges, remember to drain them first.

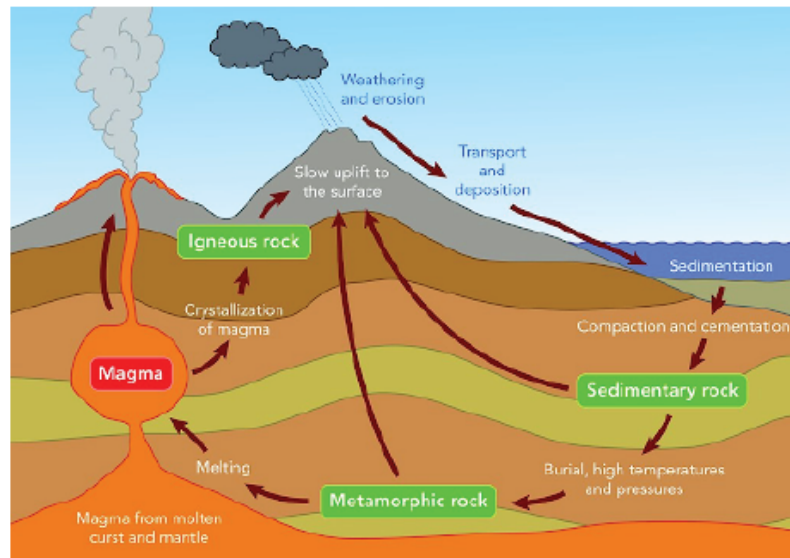
SNACKS

Edible Rock Cycle - Ages 6+

Supplies: Starbursts, Microwave or Stove

Learn the difference between sedimentary, igneous, and metamorphic rocks with edible rocks made from Starbursts. Start by creating sedimentary rocks by cutting up the Starbursts into small pieces and then pressing them gently together. Then use high pressure (like the palms of your hands) to create metamorphic rocks. Finally, melt the starbursts together in the microwave to use heat to form an igneous rock. Check out this awesome blog for full directions and instructions to heat the starbursts over the stove, if you don't have a microwave:

<http://handsonhomeschool.com/starburstrockcycle/>



SNACKS

Edible DNA - Ages 5+

Supplies: Twizzlers, Toothpicks, Gum Drops or Colored Marshmallows or Gummy Bears

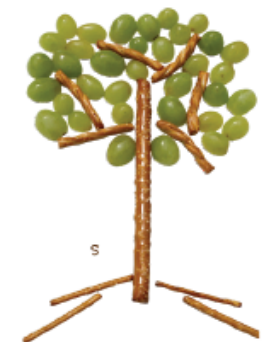
Create a model of the DNA double helix including matching base pairs with four colors of gum drops or marshmallows. Older students can add phosphates to the outside of the strand and label the four base pairs, while younger children learn that DNA is the recipe for life contained in nearly every one of our cells!



Parts of a Tree - Ages 3+

Supplies: Plate, Grapes Cut in Halves, Pretzel Rod, Pretzel Sticks

Learn the parts of a tree with a fun snack! Use the pretzel rod for the trunk, the pretzel sticks for roots and branches, and the grape halves for leaves!



SNACKS

Oreo Moon Phases - Ages 6+

Supplies: 4 Oreo Cookies, Paper Plate, Plastic Knife, Pencil

Use Oreo cookies to teach the phases of the moon as it rotates around the Earth. Use the picture below as a guide.



Cookie Mining - Ages 5+

Supplies: Chocolate Chip Cookie, Toothpick, Plate

Use the toothpick to carefully excavate the valuable resources from your quarry or in other words dig out the chocolate chips! Did some of the cookie get damaged in the process? That often happens in real mining and it can be damaging for the environment. Was it harder with buried chocolate chips, if you didn't know where they were? That can also be a problem for real mining.



SNACKS

Tootsie Roll Scat! - Ages 4+

Supplies: Several Tootsie Rolls, Plate

Scientists study scat or animal poop for many reasons. Scat can tell us where animals have been, what they've been eating, if they have any diseases, and even what size groups they live in! You can learn to identify some of the most common types of scat in NC by constructing model scat out of Tootsie Rolls. Who knew you'd ever want to snack on "scat!"

Here are some types of scat you can construct models of:

Deer Scat



Coyote Scat



Otter Scat



Black Bear Scat



RESOURCES

Environmental Education Curriculums:

Project Learning Tree: <https://www.plt.org/>

Project Wild: <https://www.fishwildlife.org/projectwild>

Project Wet: <https://www.projectwet.org/>

Food, Land, and People:

<http://www.ncagr.gov/SWC/educational/FLP.html>

Environmental Protection Agency Lesson Plans:

<https://www.epa.gov/students/lesson-plans-teacher-guides-an-online-environmental-resources-educators>

Useful Identification Websites for Beginners:

NC Reptiles and Amphibians: <https://herpsofnc.org/>

NC Native Wild Flowers:

http://www.dpughphoto.com/plants_color.htm

Birds: <https://www.allaboutbirds.org/guide/search>

NC Trees: <https://gardening.ces.ncsu.edu/2015/08/nc-tree-identification/>

Butterflies of NC:

https://files.nc.gov/ncparks/37/FIELD_ID_SHEET_Common_Butterflies_of_NC.pdf

US Animal Tracks: <https://www.greenbelly.co/pages/animal-tracks-identification-guide>

RESOURCES

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