Everyday Science:
Easy Ways to Bring Science into your Child Care
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Title & Description: Young children are natural scientists. They observe, ask questions, predict, and test out theories all day long. This workshop will give providers lots of ideas on how to set up the environment to foster scientific thinking. Participants will learn engaging ways to get children observing, questioning, and investigating using materials that are often found in childcares. We will use the Vermont Early Learning Standards (VELS) as a framework for developing hands-on fun science activities for your youngest learners.

“The important thing is not to stop questioning.” ~ Albert Einstein

“Every child should have mud pies, grasshoppers, water bugs, tadpoles, frogs, mud turtles, elderberries, wild strawberries, acorns, chestnuts, trees to climb. Brooks to wade, water lilies, woodchucks, bats, bees, butterflies, various animals to pet, hayfields, pine-cones, rocks to roll, sand, snakes, huckleberries and hornets. And any child who has been deprived of these has been deprived of the best part of education.”
— Luther Burbank (American horticulturalist and botanist, 1849 - 1926)
Preparing the environment to foster scientific thinking

Science area: hands-on, interactive, and frequently changing
Sensory table and water table
Indoor space for exploring living things & science concepts
Tools for young scientists
Outdoor environment
Art and writing materials
Materials & Resources: Books, posters, online resources related to plants, animals, nature, and science
Kid Did” – drawings, charts, posters should be evident in the room
Expand on the kid’s interests! Share books to extend their interest.

Routines to foster scientific thinking

Daily experiences in the natural world - explore the backyard, look for seasonal changes, watch the growth of plants,
Thinking like scientists – predict, observe, draw conclusions, record
Using our 5 senses
Inquiry based -- "Hmmm....I wonder why "
Kids are problem solvers
Children’s thinking should be encouraged and promoted through opened questions.
Preschool Science Centers that are Play Based

Outdoor Natural Playscape

Science Center/ Nature Table:

Special place set up at your center for children to have on-going experiences with science materials. At the child’s level, and they can have free access to

- Together gather treasures from nature on discovery walks
- Model how to investigate items
- Offer tools that scientists use - magnifying glasses, plastic tweezers,
- Real photographs
- Children’s books on related topics
- Grown up reference books – plant, tree, bird ID books
- Art that kids have made
- Journals for each child
- Flowers in non-breakable vases, living plant specimens

Science Kits/ Discovery Boxes

Dirt box: have containers of different types of dirt: potting soil, compost, sand, clay soil, etc. Compare colors and consistency -- discovery dirt bottle with water to shake & let settle

Magnets: child safe magnets, magnetic wands, muffin tins, metal jar lids, metal & non metal toys
Float v. Sink
Solid, Liquid, Gas
Shells collection
Rock collection
Bubbles (outdoor kit)
Living vs. Non-living?
Motion & Forces
Magnifying glasses
Energy from the sun
Balance Scale
Ramps
5 Senses
Things that Spin: tops, spin toys,
Water Table

Touch Table or Sensory Bin

Play Dough

Art

Book Nook

Math Center
Tools for Young Scientists

“The Door” -- taking children out into nature is your best tool!

Hand lens
Bug boxes
Penlights or small flashlights
Bird call tool
Buckets or containers for collecting (milk jug idea)
Large terrarium
Small trowels, child size shovels, rakes, flower pots, soil, seeds
Clean spray bottles
Clipboards & pencils (cardboard, construction paper, and binder clip idea)
Nature Journals (use the 3 prong folders, 5 cents each in August at Staples)
Popsicle sticks and tongue depressors
Measuring tape and rulers
Binoculars (real or toilet paper tubes)
Balance scale
Field guides for local area, laminated pamphlets
Quality children’s literature related to the themes or topics of study

What else should we add to this list?
Discovery Bottles

Discovery Bottles are wonderful learning tools to have in your classroom or childcare. Children are free to observe, explore, and experiment with a wide varied of materials and revisit the same materials time and time again. Unlike a traditional ‘experiment’ where a grown-up sets it up, demonstrates, and then quickly cleans it all up and puts it away, discovery bottles are left in the learning environment for children to play with at their own pace. These bottles are low cost and very enjoyable to make.

Bottles = emptied and washed Gatorade or juice bottles are best because the opening is wider and the plastic is thicker, but any type of recycled plastic bottle can be used. Fiji water bottles are square and have a decorative background.

Spill-proof = seal the bottle shut with hot glue, if there are choking hazards in a bottle do not let children younger than 3 years old play with them

Wet filler = plain water, colored water using food coloring or liquid water colors, vegetable oil, hair gel, body wash, shampoo, or diluted paints

Dry filler = sand, rice, shredded paper, salt, dried beans, oats, small pastas, beads, dirt, pebbles

Discovery materials = ideas are limitless, check out Pinterest or google “Discovery Bottles” to get inspired! Shells, pinecones, theme related toys, acorns,

Mud bottle: fill ¼ full with garden dirt, then add some water. Shake & observe as it settles.

Bubbles: fill half full of water, add food coloring to tint the water, and a squirt of dish soap. Encourage kids to shake to make bubbles.

Sound Bottles: Quiet vs. Loud - fill one bottle with pom poms & another with marbles. Compare the sounds when shaken.

Wave bottle: fill bottle half way with water and blue food coloring, fill the remaining space with vegetable oil, and seal. Tilt on its side to make waves.

Ocean: fill with sand, blue tinted water, and small shells. Add fish cut from foam.

Sink & Float: fill half full with water, add a variety of items - foam shapes, foam beads, plastic pony beads, pebbles, small trinkets or toys.

Seasonal bottle: gather small items from nature that represent the season and put them in

Feather bottle: fill a bottle with a variety of colored craft feathers or ones found in nature

Magnetic bottle: fill bottle half full with cut up pipe cleaners, paper clips, small magnetic letters, nuts or bolts. Have a magnet wand for kids to explore and move things that are inside the bottle.

Static bottle: fill the bottle with small tissue paper squares. Rub on the carpet or hair. What happens?
Squishy Bags

Squishy bags are a wonderful mess free sensory experience. Similar to discovery bottles in that children can interact with the materials whenever and can revisit them over and over again. Squishy bags are great for on the go...stash a few in the car or in your purse for quick distractions. These are inexpensive to make and older kids can be the ones making them.

What you need: clear hair gel, colored hair gel that works with your theme is fun too, aloe gel also works but is more expensive, heavy duty ziploc freezer bags - quart size, duct tape -- decorative types are fun, glitter, foam shapes, soft non-pokey items to put into the bag. Clean out your cupboards to find all sorts of little treasures to put into a squishy bag!

**Tip:** reinforce the bags with duct tape or clear packaging tape

**Sponge and Water** - add a soft sponge and a small amount of water. Soak & squeeze. Repeat!

**Oil and Water** - add half a cup of vegetable oil and half a cup of colored water. Will they mix?

**Corn syrup** - pour in corn syrup to the bag and feel the thickness, compare to mixtures in other squishy bags

**Coconut oil** - is it a solid of a liquid? It looks solid but once the warmth of hands is on it the oil becomes a liquid

**Letter Sounds** - plastic letters or beads with letter, and small objects that have the same beginning letter sounds. Children match the object to the letter.

**Color Mixing** - squeeze paint that is two primary colors in separate corners of the bag, add a bit of clear hair gel or shaving cream in the middle. Seal shut. The child squeezes and squishes until the colors mix.

**Aquarium bag** - fill a bag with clear hair gel, add several drops of blue food coloring, and a small fish cut out from foam.

**Glitter bag** - hair gel, glitter or confetti. Make these to tie in with the seasons or holidays.

**Q-Tip Writing** - fill the bag with paint and duct tape the top. Attach a short string with a q-tip taped to it. Encourage kids to draw and write letters.

**Stress Ball** - fill the bag with play dough for kids to knead & squeeze. Hide little sequins and gems for kids to find. For a more pliable outer surface you could put the dough into a balloon & tie.

**I-Spy bag** - fill with hair gel and add small trinkets to find. Just add letters for an Alphabet I-Spy bag.

**Seed bag** - fill bag with hair gel and orange food coloring, add a handful of real pumpkin seeds, and some yellow yarn pieces to represent the pulp. Tape the bag shut with orange duct tape. Now you have a pumpkin bag! {Make a variety of bags with different fruits: Watermelon = pink gel, black seeds, and green tape for the rind. Avocado = shampoo with green food coloring and one real avocado pit. Mango = real pit with some corn syrup to squish around}
Sensory Play is Science!

Children experience the world through their senses. Sensory play goes by many names—water tables, sand tables, touch tables, nature table—but the goal is the same = open ended, hands-on play & discovery! Children learn many concepts such as sorting (by color, size, texture), making comparisons (empty/full, wet/dry), developing their fine motor skills such as pouring and scooping, early math concepts such as more/less, volume, measuring, important science discoveries such as gravity, cause and effect. There are so many benefits to sensory play that I hope all preschool programs make time for it in their schedule.

Sensory play can be messy so you may want to set limits. Wearing smocks, limiting the number of children at a center, and set the expectations that children must help with clean up. Establish rules that sensory materials need to stay in the sensory table. Since some objects are choking hazards, adult supervision in necessary when working with young children. Hand washing before and after handling certain materials is also important.

* Where does sensory play happen at your center or home?

*What type of tools do you offer to the kids? How many tools at once?

**Tools might include:** Scoops of varying sizes, shovels, squirt bottles, whisks, old-fashioned egg beater, sponges, pails or buckets, cups, strainers, sieves, colanders, flour sifters, water wheel, small watering can, squeeze bottles, plastic tubing, funnels of varying sizes, canning funnels (wide neck - great for dry materials), hand pumps, eye droppers, turkey baster, small sand molds, measuring cups & spoons, spatulas & scrapers, tongs, tweezers, silicon candy molds, small muffin tins, small set of nesting bowls, containers with lids, parmesan cheese shakers, clean spice or sprinkle shakers, and for clean up -- child-sized broom, brush and dust pan!

*What types of materials do you use for sensory play?

Dry --

Wet --

**Dry materials might include:** dyed pasta, dried beans, sand (wet & dry), rice (plain or colored), potato flakes, leaves, colored salt, pebbles, bird seed, dried corn, feathers, plastic eggs, Organic potting soil, cotton balls, pom poms, dry oats, shells, fabric scraps, shredded colorful paper,

**Wet materials might include:** water, tinted water (liquid water colors), snow, mud, packing peanuts, Jello, flour & water, cooked spaghetti, bubble solution, shaving cream, used coffee grounds, frozen peas and carrots, ice blocks, colored ice cubes, icicles, warm 'stone soup'
Science Lab Concoctions!

Have children help you make these recipes. They will get to practice their measuring, pouring, and stirring skills and will be excited to play with their very own concoction!

**Oobleck** - mix 1 ½ cups cornstarch and 1 cup water until you achieve a thick pancake batter like mixture (don’t add too much water). If you want colored Oobleck, tint the water before adding it to the cornstarch. Explore: what happens when you hit it with your fist, pour it off a spoon, roll it into a ball & then stop rolling. When not in use, store in an airtight container. Talk about how sometimes is seems to be dry & solid and other times it flows like a liquid.

**Flubber** - mix 1.5 cups of warm water with 2 cups Elmer’s glue, then add food coloring if desired. In a different bowl, mix 4 teaspoons Borax and 1 1/3 cup warm water. Mix ingredients in separate bowls well, then pour the glue mixture into the borax mixture. Stir and watch the instant chemical reaction!

**Pudding Paint** - 1 package instant pudding mix and prepare as directed on the box. Give each child half of a cup of pudding to ‘paint’ onto a clean tray or plastic cutting board. If working with a young child, apply directly onto their highchair tray.

**No-Cook Play Dough Recipe**

- 2 cups all purpose flour
- 1 cup salt
- 2 tbsp vegetable oil
- 2 tbsp cream of tartar
- 1 ½ cups of boiling water

Drops of food coloring or liquid water color

Few drops of glycerine (Optional, but gives extra smoothness and shine)

Directions: Mix the dry ingredients. Stir through the oil. Add the boiling water and stir vigorously until all lumps are gone and it begins to come together. Then knead it until it stops being sticky. (Add food coloring and any flavoring/ natural scent at the kneading stage.)

**Kool-Aid Play Dough**

- 1 ¼ cup flour
- ¼ cup salt
- 1 pkg unsweetened Kool-aid powder
- 1 cup boiling water
- 1 ½ Tbsp vegetable oil

Directions: In a bowl, mix flour, salt and kool-aid. Stir in water and oil. Knead with hands for about 5 minutes. Store in ziploc bag for up to 2 months. This play dough smell great which may be too much temptation for younger children. We like this type of dough for it’s vivid color!
Nature Preschool Favorites

**Touch & Feel boxes:** Take shoe boxes and cut circles that are large enough for children to put their hand inside. (Tissue boxes also work but easily get crushed by preschoolers.) Either paint or cover the shoe boxes to make them appealing to your children. When they are feeling the object ask, how does it feel - bumpy, squishy, hard, etc. Try this with small toys for them to guess as well as items from nature.

**Surprise Can** - take a large metal can and put an object in the bottom. Cover the top with a black or gray knee-high nylon stocking. Kids put their hand into the stocking to feel the object at the bottom of the can, but they can’t pull it out or peak at it. Do at circle time, who can guess what is in the surprise can.

**Plaster Casts** - mix up a thick batch of plaster of Paris, pour into a pie pan, put Vaseline on the child’s hand and press into the mixture, hold for 30 seconds and then remove. Put a ribbon on the back if desired. Use same directions and put nature objects into the mixture to make a permanent collection!

**Making Tracks** - paint the children’s bare feet and have them walk along easel paper stretched out on the floor. Use different colors for each child.

**Static Balloons** - rub on hair and stick to clothing

**Sound Shakers** - match the eggs that sound the same

**Toilet Paper Binoculars**

**Tin Can Phone** -- It certainly isn’t a smart phone but it will spark your students imaginative play. The science behind how it works involves vibrations and sound waves but kids will just love to chatting with a friend. Directions: remove the lid from two tin cans, cover any sharp parts with duct tape, make a hole in the bottom with a nail & hammer, thread a string between the two cans. If you want to make it fancy, decorate the outside of the cans with paint or glue on decorations. To play: Kids stretch the cans apart until the string is taut. One child talks while the other listens.

**3 states of matter with balloons** - fill one with water, one with air, and freeze one to make an ice ball. Let them play with the balloons and talk about how they feel differently. Which feels the heaviest?

**Play Dough** - and finding ways to connect our theme with new ways to play with dough. Hammering in taps (golf pegs) to get sap, planting seeds, building 3D structures with straws, themed cookie cutters, rainbow colors when doing weather, pumpkin scented in fall, porcupines with toothpicks, beaver dams, and bird’s nests with dirt, moss & twigs.
Preschool Biology: the study of living things ~ plants and animals

What is living? - cut and paste pictures of living & non-living. How do we know?

Growing & Changing - take measurements of the children’s heights every few months and compare. Take photos of the group by a favorite tree to show seasonal change.

Worm Box & Worm Jars - see handout

Bug Observation Jar - make your own by washing out a clear juice bottle that has at least one flat side. Remove the label and wash it thoroughly. Lay it on a flat side and cut an opening on the top side. Cut a piece of screen or mesh a little bit bigger than the opening. Decorate the inside of the jar with twigs, pebbles, and leaves. Then make a frame out of craft foam strips and glue onto the mesh, then glue the mesh frame to the bottle. Find a few insects to put into the bottle, place the lid on, and then observe. Be sure to keep the insects for a just a short while, then remove the lid and let the insects escape.

Animal Camouflage - gather up several plastic animals or insects and take them outside. Explain how animals try to blend into their surroundings to stay safe. Hide the toys in areas that match the color of the animal. Play hide & seek. Was it easy to find the camouflaged critters? Ask, “How sharp are your eyes?” and discuss animals that have keen sense of sight.

Snow Shoe Hare puppet - read Snow Rabbit, Spring Rabbit by Il Sung Na. Talk about how many things in nature change with the seasons. Make a paper rabbit puppet - color one side brown and one side white.

Color Scavenger Hunt - paint an egg carton with a variety of colors that you can find outdoors. Once dried, go on a nature walk looking for small objects that match the colors in egg carton. Which colors were hard to find? Why?

Indoor Plants - year round have plants in your center. Once a week, have a helper water and tend to the plants. Hanging baskets or plants on a high shelf may work best for very young children.

Fruit is a Suitcase for Seeds - gather seeds from snack and meal times. Discuss similarities and differences. Keep a seed collection for kids to sort and play with.
Growing seeds & plants - children love to grow seeds. Try a variety of projects: grass heads, sunflowers, and our favorite “The Surprise Garden” -- see book by Zoe Hall

Growing carrot tops - save the tops from a couple of carrots that are an inch long. Stick toothpicks into the stump and balance it on a small dish. Fill it with water so it touches the carrot and place in an area that gets plenty of light. Observe as roots appear on the bottom, and greenery sprouts from the top. Since carrots are a taproot, once a carrot is removed from the plant you can’t re-grow a carrot that we eat. This project will grow carrot TOPS which are fern like and might bloom small white flowers. Read aloud, Tops and Bottoms by Janet Stevens.

Acorn to Oak Tree - try sprouting an acorn and then planting the tree

Rot Squad - place some fruit or veggie scraps into a jar and watch the changes that occur. Take pictures or make drawings once a week.

Compost - keep a small bin for food scraps from meals, then take outdoors to compost. Keep it moist and have kids help you turn it.

Dirt Play - buy several bags of organic potting soil. Let kids scoop and explore the dirt in a bin outdoors. When you are ready, add the soil to containers for growing patio plants or add it to your raised beds or garden.

Leaf collecting, rubbings, pressed leaves & flowers

Eating Leaves Taste Test - lettuce, spinach, alfalfa sprouts, and kale

Nature Collections - kids keep a special shoe box of treasures they find outside

Winter Bird Feeders - help kids make their very own bird feeders to hang & observe. Simple pine cones covered with peanut butter (or shortening if there are nut allergies) then rolled in seed. Look online for ways to use recycled soda bottles to make bird feeders. (Only feed in the winter because of bears.)

Sing before heading out into the woods~ “The forest is a wonderful place, filled with ___ and ____. I want to see a ____ face! The forest is a wonderful place - I want to go there now!”

Celery or Carnation Experiment - make a fresh cut on the stem of either plant, fill a 4-6 glasses with equal amounts of water. Add 10 drops of food coloring to each glass and stir. Place one stem into each cup and allow to sit. Observe every few hours and note the differences. Let it sit overnight and observe again. Plants draw water up through its capillaries. This is great experiment to do when explaining how sap is moving in a maple tree!

Drinking Paper - another great way to experiment with capillary action is to set up a plastic cup with darkly colored water. Cut strips from a coffee filter, put just one end into the water and lay it over the rim of the cup. Watch as the color travels up the filter paper.
Traveling Water - fill two cups with water and dye one yellow and one blue. Put a third cup in between the two. Roll two paper towels, place one into each colored cup, bend it over so the other end is in the empty cup. The liquid begins to be absorbed and makes it way into the empty cup. What color does the empty cup become?
**Preschool Chemistry:** chemical properties, chemical reactions

**Classic Experiment = Baking soda + vinegar**  Give shallow pans with small piles of baking soda and squeeze bottles with vinegar. You could add liquid water colors or food coloring to the vinegar. If you don’t have squeeze bottles, use a turkey baster or eye droppers. Have children work on a tray with edges to catch the overflow. You could bury bottles in the sand box and make simple volcanoes too!

**Ivory Soap Cloud** - in the microwave lay down a piece of waxed paper or parchment, then lay an Ivory soap bar on top. Start the timer for two minutes and let it grow, ours took about 1.5 minutes. Take it out and let the kids explore the texture. Put it into a large bowl or storage bin so all the flakes are kept together. Use the soap cloud to Make moldable soap → take the crumbly mixture and add warm water, mix until it comes together. Give the mixture to kids to flatten out and make shapes with cookie cutters. Gently push the shapes out of the cookie cutters and allow to air dry for a couple of days until firm.

**Mad Scientist Lab** - set out a wide assortment of materials for kids to mix and ‘experiment’. Water that has been tinted, diluted paints, shampoo, hair gel, flour, sand, dirt, used coffee grounds, corn starch, salt, dried herbs or spices. Let them mix into recycled containers and if they want to keep their ‘experiment’ then offer freezer Ziploc bags. These could be turned into ‘squish bags’ and could add art supplies for variety -- sequins, glitter, pom poms, foam pieces, etc.

**Colorful Rice** - pour 2 cups of dry rice into a Ziploc bag, add a few drops of food coloring, and a small amount of vinegar. Zip the bag shut and then put into a second Ziploc and seal it shut (to prevent spills). Make up several bags with different colors. Let the kids shake until the color is evenly distributed through the rice. Lay paper towels down on a tray and pour the rice out into a single layer. Allow to dry overnight. The next day, have the kids scoop up the colored rice and put into a sensory bin to play or create layered rice art bottles.

**Invisible Writing** - Give your child a sheet of plain white paper, a small amount of lemon juice in a shallow bowl, and a paintbrush or q-tip. Have your child write a secret message or picture with the lemon juice and allow to dry. Turn on a lamp with the shade removed, hold the paper up to the light bulb. Amazingly, as the lemon juice heats up the secret message will appear.
Homemade Liquid Water Colors -- take your dead water-based markers and sort by color. In a small jar add 2 inches of water, insert the markers and allow to sit overnight. The remaining ink will color the water and can be use as liquid water color paint. This will homemade paint will NOT stain! Doing this activity with children is a great teachable moment, “See how much ink was left in our dead markers. Because the caps were left off the tips got dry and would work, even though that much ink was still left.”

Shaving Cream Prints - spread shaving cream on trays and provide liquid water colors to drip on top. Kids swirl the paint then press a piece of paper on top to make a print. Paper can be cut into shapes to correspond to the season or upcoming holiday. Swirling and experimenting with mixing colors is as much fun as the print making. Let kids enjoy the process!

Polishing Pennies - see attached handout from www.pbskids.org/zoom

Color Splash - see attached handout from www.pbskids.org/zoom

Naked Egg Experiment - place a raw egg in a cup with vinegar. What happens to it? How has it change

Pepper Fingers - add water to a shallow bowl and sprinkle pepper onto the surface. Demonstrate what happens when you stick your finger into the bowl. Then put a small amount of liquid soap onto your finger and watch the pepper disperse! Have the kids experiment

Growing Crystals- Borax Ornaments - make a strong borax and water solution, shape pipe cleaners into hearts, snowflakes, letters, abstract shapes. Submerge the pipe cleaners and allow to ‘grow’ overnight. Use colorful pipe cleaners for different effects. Make sure that kids understand that this is NOT candy!

Cloud Dough - To make simply mix 8 cups of flour and 1 cup of vegetable oil. For making at home, I would likely start with just 2 Cups of flour and 1/4 cup of oil.The consistency should be like moon sand. To contain the mess, I put the dough into a under the bed storage bin and laid it on a tarp. Small cups, sand molds, cookie cutters popsicle sticks for cutting, and scientist tools such as unbreakable beakers and test tubes for pretend science & chemistry play!

Color Swirl: In a shallow bowl add full fat milk, food dye, and dish soap. Swirl and observe.
**BUBBBLES!**

**Homemade bubble recipe:** 1 cup of dish soap, 9 cups of water, and the secret ingredient to making super strong bubbles-- glycerin. Directions: Pour in the dish soap first then fill the rest of the bottle with water. Lastly add the glycerin and stir or shake. *Then let it sit overnight!* The longer you let it sit, the better the bubbles.

**Bubble Test** - many websites suggest Joy brand and others say Dawn is the best. Why not make a batch of each and test out which is the best?!

**Bubble Snake / Bottle Bubble Blower** - cut off the bottom of a water bottle, place a wash cloth over the opening and secure with rubber bands. Dip the wash cloth into the bubble solution and get it saturated. Blow through the opposite end to make long snakes of bubbles. Add food coloring or liquid water colors to the solution for even more FUN!

**Indoor Tray Bubbles:** You will need- dish soap, water, and one straw per child (label with a tape flag for simplicity). Mix together 1 cup of water and 1/4 cup of dish soap. Dip a cloth into the mixture and wipe it across a tray with sides {or large scale for a group, wipe across a whole table}. Dip the end of your straw into the bubble solution and put that end onto the wet tray and gently blow. Voila! Bubbles, big bubbles. Can you figure out how to stick your finger into the bubble without it popping?

**Bubble Painting** - in a yogurt container, add ½ cup water, 2 T. tempera paint, and 2-3 squirts of dish soap. Mix it with a straw and then blow to make bubbles. Lay paper on top to make a print. Make up several different colors and layer the prints for varying effects.

**Catching bubbles** - set out butterfly nets for kids to catch bubbles

**Bubble in a hula hoop** - start with a small wading pool, add about 5 gallons of water and a 20 ounce bottle of Dawn dish soap. The child stands in the middle of a hula hoop that is submerged in the bubble mixture. Then the hoop is slowly raised up and over the child's head so that they are inside of the bubble. The child can go in bare foot, or place a platform for them to stand on such as a low stool our a stepping stone.

**Mixed Up Bubble Wands** - set out a wide variety of kitchen tools & PVC pipe fittings to make unique bubble wands

**Homemade Beaded Bubble Wands** - pipe cleaners & beads

**Experiment - Bubble Wand Testing:** Ask kids, Which household items will make bubbles? Record predictions on a large chart pad or recording sheet. Carry out the experiment and record the results. Sort the items into 2 piles - ones that work, and ones that do not work. Discuss, what makes a good bubble blower? What is the same about the group of items that works to blow bubbles. Print recording sheet from here - http://puddlewonderfullearning.blogspot.com/2012/06/preschool-activities-bubble-wand.html

My "Bubble Day" blog post for ideas for homemade bubble machines and making a bubble filling station: http://primarylearninglogs.blogspot.com/2012/06/bubble-day.html
**BUBBBLE WRAP!**

**Bubble Wrap Running** - tape a long stretch of bubble wrap to the floor and let kids run the length, make sure there is a one direction rule so no injuries occur.

**Bubble Wrap Hop Scotch** - tape squares of bubble wrap down and write numbers on it, review how to play hop scotch

**Rolling pin bubble wrap** - cover an actual rolling pin with bubble wrap to paint or to play at the play dough table

**Bubble Wrap Painting & Printing** - tape the bubble wrap down to a table, let the kids paint it with washable paint, then give a clean sheet of paper to press down and make a print. Blue - water or ocean; white - snow; yellow - bee hive;

**Popping Bubble Wrap Letters** - with a permanent marker write letters onto bubble wrap. The kids pop the bubbles to form letters. Could do their names, the whole alphabet, or just work a few letters at a time.
Professional Booklist:

Discovering Nature with Young Children by Ingrid Chalufour and Karen Worth
(Great information about connections between inquiry skills and outcomes in other domains - see page 149-153)

Green Hour - A Daily Dose of Nature for Happier, Healthier, Smarter Kids by Todd Christopher

Last Child in the Woods - Saving our Children from Nature Deficit Disorder by Richard Louv

Let’s Play by Dusan Petricic and Camilla Gryski

Nature’s Playground by Fiona Danks and Jo Schofield

Roots Shoots Buckets & Boots - Activities to do in the Garden by Sharon Lovejoy

Rhythm of Family Discovering a Sense of Wonder through the Seasons by Amanda Blake Soule

Science Arts - Discovering Science through Art Experiences by MaryAnn Kohl and Jean Potter

Sharing the Joy of Nature by Joseph Cornell

Small Wonders Nature Education for Young Children by Linda Garrett and Hannah Thomas

Ten-Minute Field Trips: Using the School Grounds for Environmental Studies by Helen Ross Russell

Unplugged Play by Bobbi Conner (Includes games and activities for toddlers, preschoolers, and school age)

Worms, Shadows, and Whirlpools- Science in the Early Childhood Classroom by Karen Worth & Sharon Grollman

Project Seasons - Hands on activities for discovering the wonders of the world by Deborah Parrella (Shelburne Farms) Geared for children in K-5th grade but can be adapted for early childhood
On-line Resources, Preschool Websites & Blogs:

http://www.pinterest.com/azajko/boards/
Find me on Pinterest. I have lots of great boards for science in ECE.

http://naturelovingkids.blogspot.com/
This is my blog. This winter I will begin again to post ideas for science, outdoor play, and early childhood education, as well as document my children’s achievements!

http://www.poisonivy.aesir.com/view
This site has lots of information about poison ivy, oak, and sumac. “Leaves of three let them be.”

www.kidsgardening.com
Lots of great information about gardening and composting with kids

http://www.greenheartsinc.org/
Green Hearts is a nonprofit conservation organization dedicated to restoring and strengthening the bonds between children and nature.

www.vinsweb.org
Vermont Institute of Natural Science

www.prekinders.com
A wonderful website full of ideas and activities to do with preschoolers.

www.pre-kpages.com
Another wonderful preschool website full of great activities~

http://littlegiraffes.com/teaching-ideas/themes/
Preschool Themes at Little Giraffes website -

www.teachpreschool.org
I love all the updates that Teach Preschool posts on FB and her website is a great resource too
www.activityvillage.co.uk
I've recently discovered Activity Village and love some of their printables!
"...thousands of free coloring pages, kids crafts, educational resources, puzzles, printables, jigsaws, Sudoku and lots more fun, free activities for kids!" Normally I don’t print many worksheet type activities but I love their 'how to draw' printables!

www.2teachingmommies.com
One of my favorite sites to find quality (and free) printables to use with my themes is 2TeachingMommies. Their work is engaging for young kids - I love the number sequence puzzles, pattern sets, and matching activities!

www.1plus1plus1equals1.com/ForTots.html
Homeschooler blog for Tots that I love. Lots of great ideas for using tot trays, themes, lap books, and activity packs and she even hosts a weekly link up with a bunch of other 'tot school posts'

http://lapbooksbycarisa.homestead.com/TraysforTots.html
Tot Tray inspiration through pictures. I love the ideas here because it make assembling activities for young preschoolers & tots so easy!
Printable resources:

http://www.2care2teach4kids.com/preschool/learningcenters/LearningKids/page3.htm

“Sense-ational Learning Fun” and “
http://www.amyahola.com/p/resources-and-handouts.html

“The Book of Stuff to Do Outside” – printable activities to help you learn about nature and our environment; 12 color pages that feature Shrek!
http://www.discovertheforest.org/pdf/theBookOfStuffToDoOutside.pdf

“Messy Play: Bubble, Dough, Sand and Water” – free 8 page download of great sensory recipes!

Ideas & inspirations:

Chemistry experiments for kids -- http://allforkids.tv/cast/jamesons-lab/

Videos & products for all types of science experiments -- www.stevespanglerscience.com


Inspiration for outdoor nature playscapes --www.earthplay.net

Wonderful science center ideas -- http://www.prekinders.com/science-center/

Preschool science ideas (scroll down to the blue links toward the bottom of the page)
http://www.amazing-preschool-activities.com/preschool-science.html


PBS Zoom Sci -free printable science activities http://pbskids.org/zoom/printables/activities/