

Science and Sensory

<https://www.easternct.edu/center-for-early-childhood-education/reflections-from-the-field/providing-opportunities-for-experimentation-and-problem-solving.html>

Teacher Ideas

"I always thought of science as setting up "experiments" like the baking soda and vinegar volcano. That was like a "magic trick" and the children didn't learn anything about volcanoes. Children learn more when they use materials directly. I can "wonder" with them, provide materials and pose questions as they experiment. Now, I put out baking soda, vinegar and water with droppers and waxed paper. We learn together what will happen as they drop and mix. "

We explore the question, "What is a Scientist?" We brainstorm with the children and write down their ideas. Refer back to this list all year and add or delete words as they gain more experience.

Life Science

- Create a small garden to help children learn how to grow herbs and vegetables. Provide a mortar and pestle for crushing seeds and flower petals.
- Make dye from beets and flower petals by placing them in jars and keeping them in a sunny spot for a few days. Pound flower petals to make dyes.
- Predict what a pumpkin will look and feel like inside and comparing it to the outside, estimating the number of seeds then counting, follow a recipe to bake pumpkin seeds and putting a small pumpkin in a clear, closed container. The children predict what they think will happen after one week. Draw what they observe in their science journals.
- Talk about how to safely observe then have children predict which animals we might see outdoors throughout the year. Keep a list and have pictures of the animals for children to describe (color, fur, feather or shells, size, etc.).
- Have a bird feeder, binoculars and children's books about birds.
- Observe a tree throughout the year. Take pictures over time and ask children what they notice. Bring paper, markers and clipboards out for children to draw/write what they observe.
- Dry seeds from different fruits and vegetables so they could compare.
- Lima Bean observation – give children dry and soaked lima beans to observe and asked them what they noticed. Write down their ideas. Once the children explore the lima beans, give them two seeds and damp paper towels to place them in. Place the seeds in plastic bags and have the children predict what would happen. They could write/draw in their journals.



- In the Fall, take the children on a hike to look for monarch caterpillars. Read books about metamorphosis and the life cycle of the caterpillar. Display posters of butterflies around the room. Provide a butterfly puppet that can change into all of the stages.
- After checking with child comfort levels and allergies, arrange for families to visit with pets to share how they were cared for. Have children think of questions.

Physical Science

- Clear containers for water play so children can see the volumes. Change what is in the water with diluted food coloring and scents.
- Exploring solids, liquids and colloids like oobleck (one part water and two parts cornstarch).
- Float/Sink - Make boats made of tinfoil. Ask inqistive questions like:"Why do you think the water filled your boat?" "What can you do to your boat to keep the water from coming over the sides?"
- Children use markers to draw on coffee filters. Use droppers to drop water onto the filters and observe what happens.
- Color Mixing: Drop diluted food coloring (red, yellow and blue) onto waxed paper and use straws to blow or move the colors around.
- Paint with water outdoors using different sized brushes and sponges and on a big chalkboard, ground or fence.
- Children play with containers and basters in a watertray that holds large frozen pieces of ice or crushed ice mounds and water.
- The children observed small and large bubbles by blowing and waving different shapes and sizes of "wands" (spatulas with holes, berry baskets) Ask them to predict what the bubbles might look like. Give them pipe cleaners to make their own bubble wands.
- Cooking activities. Guide children to describe what they see, feel and smell (sometimes taste) and the changes they notice as we add ingredients, stir and after food is cooked.
- Ramps – Predict and explore ways that balls and cars can go down the ramps. Children help teachers make textured ramps (sand paper, tinfoil, etc.). Ask open-ended questions that prompt children to think about how the texture impacts the speed of items going down the ramp.
- Magnet investigation with household items like buttons, nuts and bolts, and keys.
- Recycling - ~~Sorting our~~ trash, becoming members of a local composting company and collecting recyclable bottles and cans to return.
- After exploring different kinds of musical instruments, give children materials to experiment with like rubber bands, empty plastic eggs, small empty boxes, bells and other materials. Ask: "How could you make a musical instrument with these materials?"

Earth Science

- Compost for a small garden and investigate soils with a hand lenses (clay, sand, compost and topsoil).
- Use a small hammer to crush rocks and shells in a cloth bag. The children choose which rocks and shells they thought would break. Explore what is left in the bag.



- Shadows- Use shadow puppets and dance in front of a light source. Make outdoor shadow art with children's bodies or toys. Place items on construction paper or nature print paper and leave the paper in the sun. The children could also use a light table indoors.
- Provide rain and wind gauges and a wind vane in the outdoor play area. Children learn about wind speed and direction by checking them when exploring/discussing daily weather conditions.

