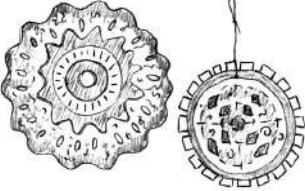



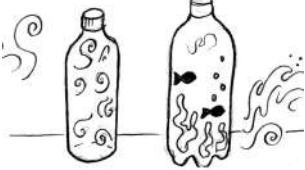




# Math, Science & Sensory Play: STEM WORKSHOP HANDOUT

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Smart Art Ideas & California PreK Learning Foundations correlations

| Smart Art Lesson  | PreK Foundations:<br>Science Outcomes   | PreK Foundations:<br>Math Outcomes   |
|---|---|--|
|  <p><b>Salt Crystal Coffee Filters</b><br/>Lesson #28 / Yellow Book<br/>Complete Lesson Plan in Smart Art, page 28</p> | <p><b>Earth Science (salt)</b><br/>1.1 Investigates characteristics of earth materials.<br/><b>Scientific Inquiry</b><br/>1.0 Observation and Investigation</p> <p>-----</p> <p>Salt is a highly absorbent mineral and a type of crystal. Add salt while paint is wet, and watch it quickly absorb the liquid paint. As it absorbs the liquid, it absorbs the color, leaving behind plain white "dots" on the painted coffee filter. Explore salt as a paint additive with liquid watercolor on other papers.</p>   | <p><b>Algebra &amp; Functions</b><br/><b>Geometry</b></p> <p>-----</p> <p>Patterns and shapes are easily taught with coffee filter art. Use same techniques on paper towel squares to make paper towel art. Paint coffee filter circles one week, and paper towel squares another week. Make a colorful collaborative paper quilt by gluing circles and squares onto butcher paper or spray watercolor directly onto the DSS "Painting Mat for Liquid Watercolor," Item #LWMAT, a GREAT 10' x 4' spongy paper painting tarp that's hard to find in retail markets.</p> |
|  <p><b>Super Colored Snow</b><br/>Lesson #19 / Blue Book<br/>Complete Lesson Plan in Smart Art 2, page 19</p>          | <p><b>Physical Science (polymers)</b><br/>2.1 Explores change in form and temperature<br/><b>Scientific Inquiry</b><br/>1.0 Observation and Investigation</p> <p>-----</p> <p>Snow powder is super absorbent and expands to 100 times its original volume! It's a completely safe, non-toxic chemical called a polymer. The colored water moves inside of the polymer and causes it to swell. Find more scientific facts about polymers on the internet and inside the snow powder container.</p>   | <p><b>Measurement</b><br/><b>Mathematical Reasoning</b></p> <p>-----</p> <p>Polymers are an exciting way to explore measurements and compare attributes. Compare big with small, soft with hard, warm with cool. It changes temperature as it expands! Mix 1 tsp of polymer with 2 ounces water (add a few drops of liquid watercolor to water first). It will puff up into a handful of colorful "snow"- is it warm or cool after it expands?</p>   |
|  <p><b>Magnet Wand Painting</b><br/>Lesson #39 / Blue Book<br/>Complete Lesson Plan in Smart Art 2, page 39</p>      | <p><b>Earth Science (magnets)</b><br/>1.1 Investigates characteristics of earth materials<br/><b>Physical Science (magnets)</b><br/>2.2 Observes the motion of objects and the effect of own actions on making objects move</p> <p>-----</p> <p>A magnet is a material that exerts a force on other materials without actually contacting them. This "magnetic force" may either attract or repel. All magnets have two points, or "poles," where the magnetic force is greatest. Find more about the properties of magnets through hands-on explorations.</p>            | <p><b>Number Sense</b><br/><b>Geometry</b></p> <p>-----</p> <p>Explore the mystery of magnets and develop spatial relationship skills by dragging magnet wand <u>under</u> the table and watching magnet balls roll in paint <u>on top of</u> table. Count out how many marbles you want to use to create different effects. What patterns and shapes can you create as you paint with marbles? Have children cross the midline as they create shapes and reinforce physical development.</p>  |
|  <p><b>X-Ray Handprint</b><br/>Lesson #44 / Blue Book<br/>Complete Lesson Plan in Smart Art 2, page 44</p>           | <p><b>Life Science</b><br/>1.2 Knowledge of body parts<br/><b>Scientific Inquiry</b><br/>2.1 Record observations in various ways</p> <p>Xrays help us explore body parts and health/nutrition. An X-ray is really a picture of the shadows cast by the bones in your body. Purchase actual xrays or ask your doctor to donate outdated ones. This "pretend" xray art mimics the real thing. Check the internet for more fun facts and remind children to drink milk for healthy bones.</p>  | <p><b>Algebra &amp; Functions</b><br/><b>Geometry</b></p> <p>-----</p> <p>Patterns and shapes are fun to experiment with using X-Ray handprints. These are an application of BioColor Scraper Art and can reinforce early 1:1 correspondence. How many hands do you have, and how many are printed? How many fingers on each hand, and how many printed? The physical development domain is also stimulated here along with crossing the midline.</p>  |
|  <p><b>Ocean in a Bottle</b><br/>Lesson #28 / Yellow Book<br/>Complete Lesson Plan in Smart Art, page 28</p>         | <p><b>Earth Science (water)</b><br/>1.1 Investigate characteristics of earth materials.<br/>2.4 Demonstrate environmental care, recycling</p> <p>-----</p> <p>Explore the material properties of water by "tagging" H2O molecules with gold or silver liquid watercolor, along with standard liquid watercolors. Shake up your "ocean bottle" and see how fast water molecules move and how long they stay in motion. Use recycled water bottles. Glue caps on tight so you can leave bottles in your science center along with magnifying glasses and color paddles.</p> | <p><b>Measurement</b><br/><b>Mathematical Reasoning</b></p> <p>-----</p> <p>Add liquid watercolor with an eyedropper, using a few drops for pastel color, or more drops for a deeper color. Compare finished "ocean bottles" by size, color, and whether they have gold or silver shimmers. The addition of gold liquid watercolor creates a warm color, and silver liquid watercolor creates a cool color tone. Make many different sized bottles, and use them to teach primary and secondary colors.</p>  |