

Sample of STEAM-Based Lesson Plan

(Standards taken from Massachusetts Department of Early Education and Care. (n.d.). *Learning standards and curriculum guidelines*. Mass.gov. <https://www.mass.gov/eec-learning-standards-and-curriculum-guidelines>)

Activity	Standards/Objectives	Materials & Methods
Marshmallow Slime	<p>PreK-PS1-4 (MA). Recognize through investigation that physical objects and materials can change under different circumstances.</p> <p>K.CC.4. Understand the relationship between numbers and quantities; connect counting to cardinality</p>	<p>Materials: Bag of marshmallows, box of cornstarch, a few tablespoons of vegetable oil, microwave-safe bowl, food coloring (optional)</p> <p>Follow this recipe: https://www.busylittlekiddies.com/edible-marshmallow-slime-recipe/</p> <p>Children can practice counting while measuring ingredients to make the slime. Remind them the melted marshmallows will be hot.</p> <p>After making slime, encourage children to explore its properties. How did temperature change the marshmallows? Why does the marshmallow slime stretch? What happens when the mixture has cooled off completely?</p>
Rainbow Coffee Filters	<p>PreK-LS1-3 (MA). Use their five senses in their exploration and play to gather information</p> <p>PreK-K.V.CR.01 (MA) Generate and conceptualize artistic ideas and work</p>	<p>Materials: washable markers, coffee filters, spray bottle with water</p> <p>Fold coffee filters in half and place them on a tray.</p> <p>Instruct children to color their coffee filters with the markers. If they use more colors, they will get more blending.</p> <p>Spray decorated filters with water and observe the changes.</p> <p>What happens when the colors mix? What happens to the coffee filter when it gets wet?</p> <p>Open the filter and observe if both sides have the same design. What led to this result?</p>

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Sink or Float?	<p>PreK-PS1-1 (MA) Investigate and discuss the properties and behavior of materials.</p> <p>Pre-K.MD.MA.1) Describe measurable attributes of objects, such as length or weight.</p>	<p>Materials: Sensory table filled with water, objects that will sink or float. Examples: boats, blocks, bottle caps, rocks, legos, plastic food, small animal figurines.</p> <p>Children can help you gather items to test.</p> <p>Model how to make a prediction. Before we drop this item, do you think it will sink or float. Why?</p> <p>Once the students gain experience, you can add weight to the objects that float to get them to sink.</p>
Marble Mazes	<p>PreK-PS2-1 (MA). Using evidence, discuss ideas about what is making something move in the way it does and how some movements can be controlled.</p> <p>Pre-K.MD.MA.1) Describe measurable attributes of objects, such as length or weight.</p>	<p>Materials: Cardboard pieces, cardboard tubes, plastic straws, tape, marbles</p> <p>Ask children to construct their own marble maze out of the materials. Help them set up a starting point and an ending point for the marble.</p> <p>What makes the marble move? How can you influence the speed of the marble? What happens if you tilt your maze? Does the shape of the marble influence its movement?</p>

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Activity	Standards/Objectives	Materials & Methods
Making Paper Airplanes	<p>PreK-PS2-2 (MA). Through experience, develop awareness of factors that influence whether things stand or fall.</p> <p>PreK-K.V.CR.01 (MA) Generate and conceptualize artistic ideas and work</p>	<p>Materials: paper, measuring tape (optional), art supplies for decorating airplanes Recommended book: <i>Smithsonian Book of Paper Airplanes</i> by Michael D Hulslander</p> <p>Model how to fold paper to make a simple airplane. P children with art supplies to decorate their airplanes.</p> <p>Demonstrate how to throw airplanes safely. Children can experiment with their technique. You can measure how far the airplanes travel or talk about varying lengths of distance.</p> <p>What forces act on things in the sky? Do things that fly have anything in common? How can you improve the speed of your airplane?</p>