

Lesson Plan Template

Grade: Pre-K		Subject: Scientific Inquiry, Reasoning and Problem Solving	
Materials: green and yellow paint, cutout of a shamrock for each student, paintbrushes (4), paper towels, water for washing brushes, baking soda, pipettes (2), two cups (to hold vinegar), vinegar, smocks for painting (optional)		Technology Needed: St. Patrick's Day Song: https://www.youtube.com/watch?v=2vx0BlvS914	
Instructional Strategies: <input type="checkbox"/> Direct instruction <input type="checkbox"/> Peer teaching/collaboration/cooperative learning <input type="checkbox"/> Guided practice <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> PBL <input type="checkbox"/> Learning Centers <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Modeling <input type="checkbox"/> Other (list)		Guided Practices and Concrete Application: <input type="checkbox"/> Large group activity <input type="checkbox"/> Hands-on <input type="checkbox"/> Independent activity <input type="checkbox"/> Technology integration <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Imitation/Repeat/Mimic <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain: The activity will be introduced in large group and completed individually at the learning center. The experiment is hands-on and completed by the students.	
Standard(s) Goal P-SCI 5. Child plans and conducts investigations and experiments. Goal P-SCI 1. Child observes and describes observable phenomena (objects, materials, organisms, and events). Goal P-SCI 3. Child compares and categorizes observable phenomena.		Differentiation Below Proficiency: The learner will describe the paint before and after putting vinegar on it without comparing the two. The teacher will do hand-over-hand with dropping vinegar on the paint with the student. Above Proficiency: The learner will make a prediction before dropping the vinegar on the paint and will amend the prediction based on the result of the experiment. Modalities/Learning Preferences (Auditory, Visual, Tactile, Kinesthetic) Auditory: The teacher verbally explains the directions for the experiment. Visual: The learner visually observes the reaction between the vinegar and baking soda. Tactile: The learner uses their hands to control the paintbrush and pipette to conduct the experiment.	
Objective(s) The learner will conduct an experiment with fizzy paint. The learner will observe and compare the difference between the paint before and after adding vinegar. Bloom's Taxonomy Cognitive Level: Understand, Analyze			
Classroom Management- (grouping(s), movement/transitions, etc.) The students will be in large group for the explanation of the experiment. Then the students will be called, two at a time, to conduct the experiment using craft sticks with their names on it to determine who comes. The learners not conducting the experiment will be working on separate work jobs throughout the room.		Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) The learners will use careful hands with the paint and vinegar. The learners will clean up any mess they make before they leave the activity. The learners will safely place their clovers on the drying shelf when done with the experiment.	
Minutes	Procedures		
4	Set-up/Prep: Mix the baking soda into the green and yellow paint. Set out paints, paintbrushes, paper shamrocks, paper towels, and cups of vinegar with pipettes at the station.		
2	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) Play the St. Patrick's Day song and sing along with the kids.		
5	Explain: (concepts, procedures, vocabulary, etc.) "Today, students we are going to be making our own shamrocks. A shamrock looks like this, (Show the cutout) except it is usually green. We are going to be painting our shamrocks, and I have laid out green and yellow paint for you, so you can decide if you want a shamrock that is just green, or green and yellow, or just yellow. You decide. But, after you are done painting your shamrock, I am going to give you some magic liquid that my leprechaun friend gave me, and you are going to drop some of the liquid onto your painting, and it's is going to make the painting do something very cool. I want you guys to really pay attention to what happens when you drop the liquid onto the paint because we are going to talk about what the difference in the paint is after you are done.		

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	<p>We are going to be scientists and conduct an experiment. I am going to call you guys back two at a time to do the experiment just like we have done before. Does everyone understand? Good!"</p>		
<p>5-10 (per pair of students)</p>	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) Help the students conduct the experiment. After the students drop the vinegar on the paint and they see what happens, tell them what was in the paint and what the liquid was called. Tell them that adding baking soda and vinegar together makes this kind of reaction every time. Ask reflective questions like: "What was different about the paint after you dropped the liquid on it?" "Do you think that the experiment would work if we used water or something else instead of vinegar? Why not?" "Do you think it would work if we used different colors? Why?" "What happened when you dropped the vinegar on the paint?" "If you did this experiment again, would you do it the same or would you change how you did it? What would you change?"</p>		
<p>2</p>	<p>Review (wrap up and transition to next activity): "Good job, scientists! So was the liquid actually magic? Why not? What did you learn from the experiment? Those are awesome answers! You guys can clean up the center, lay your shamrocks on the drying shelf, and find a work job."</p>		
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc. Observation of answers to the questions in the explore section: "What was different about the paint after you dropped the liquid on it?" "Do you think that the experiment would work if we used water or something else instead of vinegar? Why not?" "Do you think it would work if we used different colors? Why?" "What happened when you dropped the vinegar on the paint?" "If you did this experiment again, would you do it the same or would you change how you did it? What would you change?"</p> <p>Consideration for Back-up Plan: If I forget my materials at home, the students can perform the experiment called Magic Milk where students drop little drops of food coloring into milk, put a little dish soap on the end of a Q-tip and put it in the middle of the milk. This experiment would also allow the students to observe and compare the differences in the milk before and after the experiment.</p>		<p>Summative Assessment (linked back to objectives) End of lesson: Observation of answers to the questions in the review section: "So was the liquid actually magic? Why not? What did you learn from the experiment?"</p> <p>If applicable- overall unit, chapter, concept, etc.:</p>	
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p> <p>In this lesson, the kids absolutely loved making the paint fizz. They were fascinated with the difference in the paint before and after. However, they struggled to come up with the words to describe what was happening. They were very easily able to see and talk about the difference and change, but not as easily able to describe the difference. Throughout the lesson, I did increase my scaffolding and started giving them words to describe it, and one of the students leaned down and listened to the bubbles pop and made the connection with the sound that soda makes- popping or fizzing. I utilized that comparison with all the students after her. In the future, I would utilize this comparison to aid students in describing the change. Also, I initially had the students paint their shamrocks on paper plates, but it ended up being really messy, so I had them paint the shamrocks on cookie sheets instead which really helped with the mess. Additionally, I tried to introduce some vocabulary with acids and bases (purely describing them as special kinds of liquids and solids), but I quickly realized that the students were not developmentally ready for that vocabulary, so I did not continue to pursue that. They were better able to grasp liquids and solids as vocabulary, so I shifted my focus to those words. In the future, I think I would pre-teach the vocab words I wanted them to utilize to describe the change in the paint by using listening to the bubbles pop in a soda can during the Engage portion of the lesson and modeling the vocab by saying "Students, do you hear the bubbles popping and fizzing in this soda? There are liquids like this soda that makes that popping and fizzing noise. Today, we are going to add a liquid like that to paint to see the popping and fizzing. We are going to talk about how the paint changes from before and after we add the magic liquid."</p>			