

Claire Wurzer

<p>Grade: fourth</p>	<p>Subject: Science</p>
<p>Materials: A clear plastic bottle with cap, a temperature strip, tape, and a match, an exit slip, a pencil</p>	<p>Technology Needed: computer with projector</p>
<p>Instructional Strategies:</p> <ul style="list-style-type: none"> ◦ Direct instruction ◦ Guided practice Socratic Seminar Learning Centers ◦ Lecture Technology integration ◦ Other (list) <p style="margin-left: 150px;">◦ Peer teaching/collaboration/cooperative learning</p> <p style="margin-left: 150px;">◦ Visuals/Graphic organizers</p> <p style="margin-left: 150px;">◦ PBL</p> <p style="margin-left: 150px;">◦ Discussion/Debate</p> <p style="margin-left: 150px;">◦ Modeling</p>	<p>Guided Practices and Concrete Application:</p> <ul style="list-style-type: none"> ◦ Large group activity ◦ Hands-on ◦ Independent activity ◦ Technology integration ◦ Pairing/collaboration ◦ Imitation/Repeat/Mimic ◦ Simulations/Scenarios ◦ Other (list) <p>Explain:</p>
<p>Standard(s)</p> <p>4.3.1. Identify the forms in which water appears when heated and cooled (i.e., water vapor, liquid, solid)</p>	<p>Differentiation</p> <p>Below Proficiency: Students will be able to discuss with their peers and with the teacher about the processes that are occurring. We will review the water cycle so students can solidify your understanding.</p>
<p>Objective(s)</p> <p>-students will be able to identify which water appears when heated and cooled by reflecting on what they saw occur when we created a cloud when answering questions on their exit slips.</p> <p>Bloom's Taxonomy Cognitive Level: III</p>	<p>Above Proficiency: Students will be able to think critically and elaborate in their writings about their thoughts on the material and can facilitate discussion with peers about the concepts.</p> <p>Approaching/Emerging Proficiency: Students will participate in the activity, review the water cycle, and discuss ideas with their peers to build understanding.</p> <p>Modalities/Learning Preferences:</p> <p>Kinesthetic- making the cloud in a bottle</p> <p>Visual- seeing the experiment, seeing the online water cycle</p> <p>Auditory- listening to instruction and the water cycle</p>

<p>Classroom Management- (grouping(s), movement/transitions, etc.)</p> <p>-Transition students to the carpet with their voices at a level zero or one, if they are not already there.</p>	<p>Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)</p> <p>-Transition students to the carpet with their voices at a level zero or one, if they are not already there.</p>
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<p>-Tell students to designate one member of the group to grab the items and bring them back to their table.</p> <p>---have a group member who hasn't gotten materials yet come to the sink to get some water for their bottle. Have them bring their bottles.</p> <p>-Transition to the next activity.</p>	<p>Do a clap pattern that the students to repeat and get their attention.</p> <p>-With our materials, we have to be very careful and use them like they are intended. If you are doing something that you are not supposed to be doing with the materials, you will be warned and then will have to just watch the experiment.</p> <p>-tell students that they will have to wait to use the materials until instructed. Tell students to designate one member of the group to grab the items and bring them back to their table.</p> <p>-Follow the directions of the experiment: Get students attention with the chimes.</p>
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Minutes	Procedures
	<p>Set-up/Prep: get water cycle materials ready, get exit slips ready, pull up online water cycles</p>
<p>3 mn</p>	<p>Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)</p> <p>-Transition students to the carpet with their voices at a level zero or one, if they are not already there.</p> <p>-Do a clap pattern that the students to repeat and get their attention.</p> <p>-How do you think clouds are made? Have students discuss it with their table. Give students a ten second warning and have students raise their hands with their voices off if they have ideas that they want to share.</p> <p>-Tell students that we are going to find out all about the water cycle, which includes how clouds are made, today.</p>

7 mn	<p>Explain: (concepts, procedures, vocabulary, etc.) - Click through the different stages of the water cycle.</p> <p>-After water storage, discuss briefly what an aquifer is. -https://www3.epa.gov/safewater/kids/flash/flash_watercycle.html -</p> <p>watch the clouds twice, telling students to really listen.</p> <p>-Have students discuss with their table, how clouds are formed now that they know more information. Tell students that clouds are formed when the water vapor gets cold and changes back into water. This is called condensation.</p> <p>-Thumbs up if your group discussed something similar, side if it was kind of similar, or thumbs down if it was not similar.</p> <p>-If there were quite a few thumbs down, discuss the concept further by rewatching the video and explaining what the video discusses in a slower and concrete way.</p>
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Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)

-Today we are going to experience condensation through cloud creation for real by creating a cloud in a bottle.

-tell students that they are going to get to do most of the experiment with their table groups and I will show everyone the last part of the experiment using one bottle.

-With our materials, we have to be very careful and use them like they are intended. If you are doing something that you are not supposed to be doing with the materials, you will be warned and then will have to just watch the experiment.

-tell students that they will have to wait to use the materials until instructed. Tell students to designate one member of the group to grab the items and bring them back to their table.

-Follow the directions of the experiment:

Tell the students to lay the bottle on it's side so that you can easily read the temperature strip.

Part 1

Tell students to look at the temperature inside the bottle. Have students share out the temperature in their bottles and record them on the board. Then have students squeeze the bottles as hard as they can for one minute. Read the strips and share out answers again.

-discuss with students what the temperature is and why it changed the way it did. Call on students whose hands are raised.

-get students attention by saying materials down, all eyes on me

-have students share out their observations when their hands are raised.

Part 2

-have a group member who hasn't gotten materials yet come to the sink to get some water for their bottle. Have them bring their bottles.

Now have the students swirl the water around so most of the inside of the bottle is wet. Repeat the squeezing and checking of the temperature.

What happened? Discuss this with table groups

-Get students attention with the chimes. Tell students to sit at their spots and I will do the rest of the experiment.

I will lay the bottle on its side and open it. I will flatten it by pushing down half of its usual size. I will light a match and blow it out, putting it inside the bottle as it smokes. I will let go of the bottle and put the cap on. I will then squeeze the bottle for a minute. Then I will let the bottle go back to its shape.

Have students discuss with their groups what they saw happen. Have students raise their hand and share out.

	<p>We saw the water molecules condensing into a cloud. When we squeeze the bottle the air pressure increases which increases the temperature. The warmer air helped the water evaporate and we couldn't see it anymore. When we let the bottle go back to its shape the pressure decreased and so did the temperature. This decrease in temperature made the cloud.</p> <p>Hand out exit slips (found below). Give the students around 5 minutes to fill them out with a voice level zero at their desks.</p>
<p>3 mn</p>	<p>Review (wrap up and transition to next activity):</p> <ul style="list-style-type: none"> -Have students flip their sheets over and discuss these questions as a class to promote clarity. -Transition to the next activity.
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson-clarifying questions, check-in strategies, etc.</p> <ul style="list-style-type: none"> -Students will answer questions and discuss with their group throughout the lesson. They will also express their understanding with thumbs up down middle. The teacher will watch and listen for students' understanding and/or confusion. -Students will fill out the exit slip to show their understanding of water and different forms and temperatures. <p>Consideration for Back-up Plan: Discuss areas further with students, go back and review water cycle animation</p>	<p>Summative Assessment (linked back to objectives) End of lesson:</p> <ul style="list-style-type: none"> -Students will take a test at the end of the unit on their knowledge of the whole water cycle. <p>If applicable- overall unit, chapter, concept, etc.: properties of matter</p>

Reflection (What went well? What did the students learn? How do you know? What changes would you make?):

My science lesson went extremely well today. I feel like this is the most successful lesson that I have taught so far. I feel this way because by the end of the lesson, I feel like the students could grasp the material in a deep and substantial way. They did not just know the material, but understood the scientific processes of what was occurring. This was a big success for me and for the students. I was so happy to see them not only fully grasping what they were learning, but also having so much excitement for the material. The classroom management went well. I set up expectations for how the materials should be used and told the students the consequences that would occur if they were being disrespectful. The

students were very motivated to make a cloud, so did not choose to jeopardize their opportunity. They were all discussing the material during their turn and talks and many wanted to share their ideas out to the class. Even when they were not correct, we discussed it further and found the correct solution to the question. The students worked together very well throughout the lab and were able to apply their knowledge that they had just gained during the water cycle animation to what they were seeing in the lab. It was great to see them building on their knowledge and ideas throughout the lesson, gaining a fuller understanding.

One thing that got me nervous at the beginning of the lesson is that they all got their snacks out because usually they have their snacks at that time of the day, during a lesson. I panicked in my head because I did not want them to be eating snacks during the lab. Crumbs could get in the bottle and disrupt the experiment. I solved the problem by telling the students that they could eat their snacks during the beginning instruction and during the exit slip time and end discussion. In the end it worked out. The students were all very respectful of my wishes and it worked out well. Another thing that could have gone better was organizing how students were going to see the bottle. I had it sitting on the table for the part of the experiment that I was showing them. Instead of doing this I should have just had it on the table for the part of the experiment where I was squashing the bottle in half. Once the match was in the bottle I should have held it up and squeezed it up high so the students could see what was happening well from their desks. Instead, quite a few students stood up and crowded around. I had to redirect them and figure it out on the spot. If I would have held the bottle up, this would have not been a problem. Overall, this was a very successful lesson, in my eyes.

Name: _____

Science Exit Slip

What was the water in the bottle called when in was in cloud form?

Why did the cloud form in the bottle? _____

Name: _____

Science Exit Slip

What was the water in the bottle called when it was in cloud form?

Why did the cloud form in the bottle? _____
