







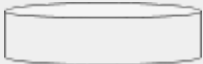


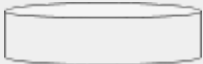


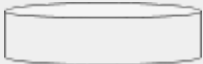


Unit 3: Connecting Places, Connecting People

WEEK 3 Lesson 2

Science and Engineering: Physical Science
Matter and Its Interactions: Reversible and Irreversible Changes (Evaporation)

S & E Big Ideas	Matter changes states when we cool it or heat it. Some changes of matter are reversible, some are not.												
S & E Guiding Questions	How can water change? Can a liquid be changed into a gas?												
Content Objectives	I can observe and record what happens to water when left exposed to air. (2-PS1-4) I can write and draw about what I observed in my group’s petri dish and compare that observation to what I predicted. (2-PS1-4, Practice 4)												
Language Objective	I can use appropriate words to describe what happens to water when it is left exposed to air. (L.6.2.a)												
Vocabulary	evaporation: the process of turning from liquid into gas vapor: gas water vapor: water that is in the form of a gas												
Materials and Preparation	<ul style="list-style-type: none"> ● Science and Engineering packets ● writing tools ● chart paper and markers <p>Prepare the following chart, leaving the title blank.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3"></th> </tr> <tr> <th style="width: 15%;">Group #</th> <th style="width: 40%;">Location</th> <th style="width: 45%;">Drawing</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td style="text-align: center;"></td> </tr> </tbody> </table>				Group #	Location	Drawing	1			2		
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<p>Opening 5 minutes</p>	<p><i>Today you will observe, record, and discuss what happened to the water in the petri dishes you set up in our last lesson.</i></p> <p><i>After you have made your observations and recorded them, discuss these questions in your group.</i></p> <p>Read the questions on the whiteboard. Answer any clarifying questions. Dismiss children to work in their established small groups.</p>									
<p>Investigation 10 minutes</p>	<p>Children discuss their observations in small groups and record observations in their packets. Recorders also add to the class chart.</p>									
<p>Discussion 14 minutes</p>	<p>Invite each group to share highlights from their observations and discussions.</p> <p>Then, direct children’s attention to the class chart and facilitate discussion of findings. Affirm children’s observations and thinking, using their own descriptive language, clarifying as needed, and modeling use of precise language.</p> <p><i>At which locations did more water disappear, dry up, go away, or evaporate? Where is there less water in the petri dishes?</i></p> <p><i>Where did less water disappear, dry up, go away, or evaporate?</i></p>									

*Where is there more water remaining?
Why do you think it happened this way?*

Note:

The idea of heat/a warmer location will likely arise in discussion. The higher the temperature, the faster the water “dries up.” However, evaporation takes place even when the air is cold, because water molecules are moving at different speeds and some are always being bumped out (evaporated) unless the surrounding air is saturated. Thus, the rate of evaporation is related both to temperature and humidity. While a full explanation of the variables of evaporation is likely too complicated for second graders, instructional language should not be so simple as to preclude a deeper understanding later on.

Make connections to the previous experience with melting.

How are these conditions similar to the ones that made the ice cube melt?

Where do you think the water went?

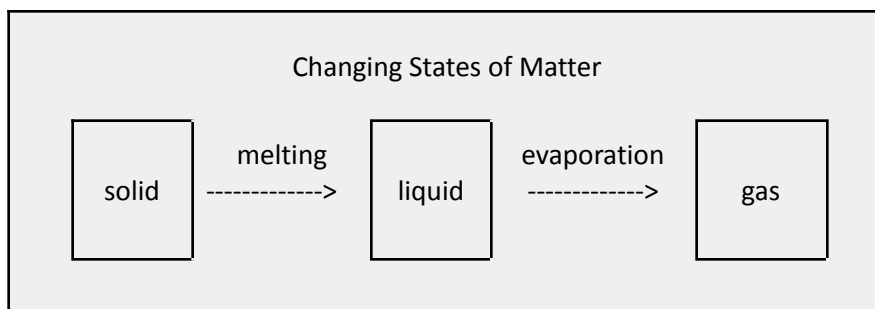
Why do you think this?

If children have not done so already, explicitly introduce the word “evaporation.”

*Just as you observed that water can change from a solid state to a liquid state, it can change from a liquid to a gas. This is called **evaporation**. The water exists as water vapor; **vapor** is a synonym for gas. Remember, gas can be hard or impossible to see.*

Add the title, Evaporation Observations, to the chart.

Add to the Changing States of Matter chart begun in Week 2:



Closing
1 minute

Refer to the self-assessment questions in the Science and Engineering packets. Have children turn and talk in small groups or with partners.

In our two lessons this week, did you ask a question that could be

	<p><i>answered by conducting a science investigation? What was that question, and how did you answer it?</i></p> <p><i>Today, we learned that when water dries up we call that process evaporation. When water changes states from liquid to gas, we call that gas water vapor. You will continue to investigate evaporation at the Discovery Studio this week.</i></p>
<p>Standards and Practices</p>	<p>2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p> <p>L.6.2.a Use words and phrases acquired through conversations, reading, and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., When other kids are happy, that makes me happy).</p>
<p>Ongoing assessment</p>	<p>Reflect on the class discussion.</p> <p>How do children describe their observations and thinking?</p> <p>What questions do they ask?</p> <p>What misconceptions remain?</p>

Notes