

Unit 3: Connecting Places, Connecting People

WEEK 1 Lesson 2

Science and Engineering: Physical Science

Matter and Its Interactions: States of Matter

S & E Big Ideas	Matter can change from one state to another. Some changes of matter are reversible, some are not.
S & E Guiding Question	What is matter?
Content Objective	I can make a claim about whether a material is solid, liquid, or gas and use evidence to support my claim. (2-PS1-1, Practice 7)
Language Objective	I can use adjectives to describe the properties of solids, liquids, and gases. (L.1.2.e)
Vocabulary	gas: state of matter that expands to fill any space and is often difficult to see liquid: state of matter that flows and adopts the shape of its container matter: everything that has weight and takes up space solid: state of matter that has and keeps its own shape state: the form in which matter exists: liquid, solid, or gas
Materials and Preparation	<ul style="list-style-type: none">● Science and Engineering packets● pencils, one for each child● States of Matter slides● projector and screen● chart paper Prepare the following chart, leaving the title blank.

	<table border="1"> <tr> <td colspan="4" style="background-color: #e0e0e0;"></td> </tr> <tr> <td></td> <td style="text-align: center;">solids</td> <td style="text-align: center;">liquids</td> <td style="text-align: center;">gases</td> </tr> <tr> <td>Examples</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Properties</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Definition</td> <td></td> <td></td> <td></td> </tr> </table>						solids	liquids	gases	Examples				Properties				Definition			
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<p>Opening 1 minute</p>	<p><i>Today we'll share the work you did yesterday. As we do, we'll describe each of the states of matter: solid, liquid, and gas.</i></p>																				
<p>Discussion 26 minutes</p>	<p>Distribute children's packets and pencils, and have them sit with their partners or small groups from the previous lesson.</p> <p><i>Take a minute to look at what you found and recorded yesterday.</i></p> <p>Invite pairs or small groups to take turns naming some of the materials recorded in their packets. As they do, add the materials to the chart in the appropriate columns, in the Examples row.</p> <p>As children will likely have generated fewer examples of gases, provide additional examples.</p> <p>In instances of disagreement about how a material is categorized, encourage children to support their claims with evidence: <i>How do you know?</i></p> <p><i>Now let's think together to understand the properties of each state. Let's look at our list of solids. How do we know that all of these examples are solids? What are the properties, or characteristics, of solids?</i></p> <p>Encourage children to use adjectives to describe the examples in each category to arrive at a list of properties. In addition, find ways to complicate children's thinking. For example, if a solid object is described as "hard," challenge children to think of a solid that is <i>not</i> hard (bread, a squishy ball, clothing).</p> <p>Record properties on the chart, and allow children time to write in their</p>																				

	<p>packets. Also write a definition for solids: “something that has and keeps its own shape”.</p> <p>Continue the discussion, considering examples and properties of first liquids and then gases. <i>How do we know these are liquids? What are properties, or characteristics, of liquids?</i></p> <p>Record properties on the class chart and allow children time to write in their packets. Also write a definition for liquids: “something that flows and takes the shape of its container.”</p> <p><i>How do we know these are gases? What are properties, or characteristics, of a gas?</i></p> <p>Record properties on the class chart and allow children time to write in their packets.</p> <p>Write and give children time to write definitions for each state. Children may challenge the idea that a gas has weight and takes up space because it cannot be seen. Acknowledge that this is a tricky idea. <i>Scientists know gases take up space and have weight; but because many gases are invisible, we can’t see them.</i></p> <p><i>We have been talking about the states of the materials that surround us—whether the materials are solid, liquid, or gas. Scientists call all that material matter. Matter is everything that has weight and takes up space.</i></p> <p>Write the title, States of Matter, at the top of the chart.</p> <p>Show the States of Matter slides. <i>These are all examples of matter, because they all have weight, and they all take up space, even if we can’t see them.</i></p> <p>Remind children that they can find images for reference in their packets.</p>
<p>Closing 3 minutes</p>	<p><i>I had a dream last night; it felt quite real! But a dream does not take up any space, and it doesn’t have any weight. It is not matter.</i></p> <p><i>Turn and talk to your partner: What else can you think of that is <u>not</u> matter?</i></p> <p>Harvest some examples, such as ideas, feelings, dreams, words, thoughts.</p>

	<p><i>These are things that exist and that come from inside us. They are <u>not</u> matter. But everything that surrounds us is matter, and matter exists in three different states: solid, liquid, and gas.</i></p>
<p>Standards and Practices</p>	<p>L.1.2.e Use adjectives and adverbs and choose between them depending on what is to be modified.</p> <p>2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p>
<p>Ongoing assessment</p>	<p>Reflect on the class discussions.</p> <p>What adjectives and other descriptive language are children using?</p> <p>How do children describe solids, liquids, and gases?</p> <p>What is confusing? How might these confusions be addressed?</p>

Notes