🧊 Lesson Plan: Solids, Liquids, and Gases

Grade Level: 5
Subject: Physical Science
Duration: 45–60
NGSS 5-PS1-1: Develop a model to describe that matter is made of particles too small to be seen.

🎯 Learning Objectives

By the end of this lesson, students will be able to:

- **Identify** the three states of matter and their defining characteristics.
- **Describe** how particles are arranged differently in solids, liquids, and gases.
- **Explain** how temperature affects matter and causes phase changes at specific points.

- **Melting Point:** The temperature at which matter changes from a solid to a liquid. An ice cube's melting point is 0 degrees Celsius.
- **Freezing Point:** The temperature when a liquid becomes a solid. Water's freezing point is 0 degrees Celsius.
- **Evaporation:** The process by which water changes from liquid form to gas form as water vapor.

💼 Materials Needed: (all links are included in this PDF)

- Printed copies of the Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-solids-liquids-and-gases-1.pdf)
- Vocabulary matching worksheet (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-solids-liquids-and-gases-1-1.pdf)
- Practice Worksheet 0 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-solids-liquids-and-gases-1-0.pdf)
- Practice Worksheet 1 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-solids-liquids-and-gases-1-1.pdf)
- Practice Worksheet 2 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-solids-liquids-and-gases-1-2.pdf)
- Ice cubes in a sealed plastic bag
- Water in a clear container
- Balloon filled with air

- Demonstrate phase changes by placing an ice cube in a sealed bag and having students observe it melt, showing solid-to-liquid change without mass loss.
- Discuss temperature's role in phase changes, introducing boiling point, melting point, and freezing point using water as the primary example. (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-solids-liquids-and-gases-1.pdf)

Step 3: Guided Practice (15 minutes)

- Distribute the vocabulary matching worksheet and work through the first two terms as a class, reinforcing definitions. (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-solids-liquids-and-gases-1-1.pdf)
- Have students complete the remaining vocabulary matches in pairs, then review answers together. (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-solids-liquids-and-gases-1-1.pdf)
- Discuss the water cycle diagram from the Study Guide, identifying where evaporation occurs and what temperature changes cause it. (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-solids-liquids-and-gases-1.pdf)

Step 4: Independent Practice (15 minutes)

- Provide students with Practice Worksheet 0 to identify and classify examples of solids, liquids, and gases. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-solids-liquids-and-gases-1-0.pdf)
- Have students complete Practice Worksheet 1, focusing on particle arrangement and phase change processes. (https://newpathworksheets.com/api/worksheet/worksheet-science-

Differentiation Strategies

For advanced learners:

- Challenge students to research and compare the boiling and freezing points of substances other than water, such as mercury or alcohol, and explain why different substances have different phase change temperatures.
- Have students create a detailed diagram of the water cycle that includes all phase changes with labels for evaporation, condensation, freezing, and melting.

For learners needing support:

- Provide a pre-labeled water cycle diagram with color-coded arrows showing each phase change process.
- Offer sentence frames for vocabulary definitions such as: 'A solid is a state of matter that _____' to help students structure their responses.

Extension Activities

- Conduct a hands-on experiment where students measure the temperature of ice water as it warms to room temperature, recording data every two minutes and graphing the temperature change.
- Have students design a poster illustrating the three states of matter with real-world examples and particle diagrams for each state.
- Challenge students to explain what happens to the particles in a puddle of water on a sunny day and where the water goes when it evaporates.

and-gases-1-1.pdf)

SOLIDS, LIQUIDS, AND GASES

States of Matter

Solid, liquid, and gas are all states of **matter**.

SOLID Facts:

- The molecules in solids are tightly packed together.
- Solids also can hold their own shape.
- Example of solid = a brick

Lesson Checkpoint: Describe a SOLID.

- Gases can fill any size room or any size container.
- Example of a gas = helium.

Lesson Checkpoint: Describe a GAS.

The Water Cycle: Matter Can Change Forms!

Evaporation
Evaporation is the process by which water changes from liquid form to gas form (in the form of water vapor).

Which stage of water cycle shows the process of **evaporation**?

Matter Changes State at Specific Temperatures

When matter changes or transforms from one state to another, the temperature of the matter helps determine when it changes.

A liquid's **boiling point** is the temperature when a liquid begins to boil

Science worksheets: Solids, liquids and gases.

Sci E

Name_____ Class_____ Date_____

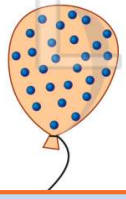
1 Which of the following describes the molecules in a **solid**?

A They are loose.
B They are spread apart evenly.
C They are tightly packed together.
D They have a lot of energy and move around a lot.

2 Which is true about the molecules in a **liquid**?

A They are tightly packed like those in a solid.
B They do not move at all.
C They move around more than those in gases.
D They are more loose than those in solids.

3 The molecules in **gases** are _____.



A close together
B far apart and moving
C separated just a little

4 Alanna tried to pull, push, and poke the table, but the table **still looked the same**. Which statement can Alanna write down in her science notebook after experimenting with the table?

A Solids can hold their own shape.

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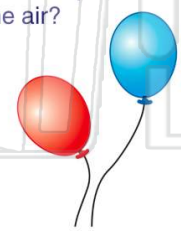
B gases
C liquids
D plasmas

9 Which **gas** is used to fill up balloons so they **rise** into the air?



A helium
B carbon dioxide
C oxygen
D nitrogen

10 Which of the following has a **definite size and shape**?

A solid
B liquid
C gas
D plasma

Science worksheets: Solids, liquids and gases.

Sci E

Name_____ Class_____ Date_____

1 Which of the following describes the molecules in a **solid**?

A They are loose.
B They are spread apart evenly.
C They are tightly packed together.
D They have a lot of energy and move around a lot.

C

2 Which is true about the molecules in a **liquid**?

A They are tightly packed like those in a solid.
B They do not move at all.
C They move around more than those in gases.
D They are more loose than those in solids.

D

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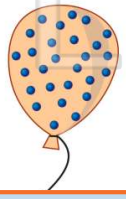

A close together
B far apart and moving
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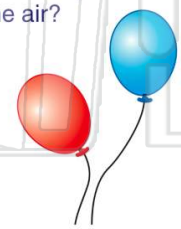

A helium
B carbon dioxide
C oxygen
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A

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A solid
B liquid
C gas
D plasma

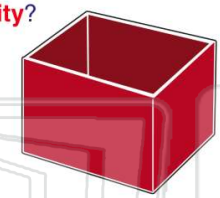
A

Science worksheets: Solids, liquids and gases.

Sci E

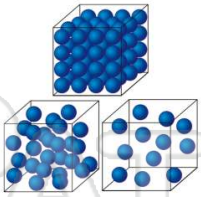
Name_____ Class_____ Date_____

1 Which of the following takes the shape of its container **with the help of gravity**?



A solid
B liquid
C gas
D plasma

2 In which state of matter are molecules **most excited and move around** the most?



A solid
B liquid
C gas
D water

3 **Ice** is a _____.

A solid
B liquid
C gas
D plasma

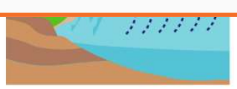
4 Which is an example of a **liquid changing into a gas**?

A water being poured into a glass
B water freezing in a freezer

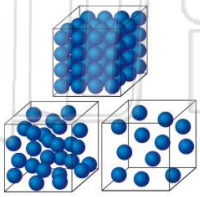
5

7

D evaporation



9 For most substances, in which state of matter are the molecules **closest together**?



A solid
B liquid
C gas
D plasma

10 **Evaporation** and **boiling** _____.

A are the same process
B both involve liquid changing into a gas
C are part of the water cycle
D both involve gas changing into a liquid

Science worksheets: Solids, liquids and gases.

Sci E

Name_____ Class_____ Date_____

1 Which of the following takes the shape of its container **with the help of gravity**?

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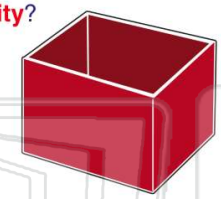
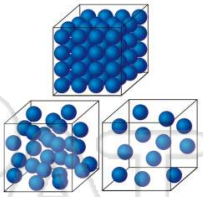
D plasma



B

2 In which state of matter are molecules **most excited and move around** the most?

A solid
B liquid
C gas
D water



C

3 **Ice** is a _____.

A solid
B liquid
C gas
D plasma

A

4 Which is an example of a **liquid changing into a gas**?

A water being poured into a glass
B water freezing in a freezer

C

5

C

7

D evaporation

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9 For most substances, in which state of matter are the molecules **closest together**?

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C gas
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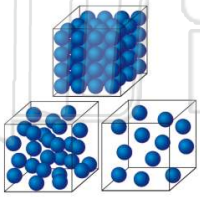


A

10 **Evaporation** and **boiling** _____.

A are the same process
B both involve liquid changing into a gas
C are part of the water cycle
D both involve gas changing into a liquid

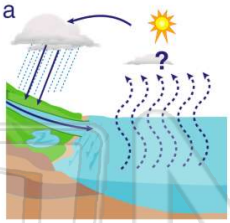
B

Science worksheets: Solids, liquids and gases.

Sci E

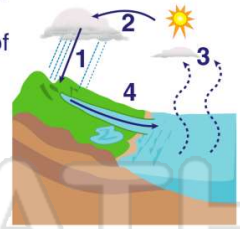
Name_____ Class_____ Date_____

1 In which step of the water cycle does water change from a **liquid into a gas**?



A precipitation
B water runoff
C evaporation
D condensation

2 Which number represents **condensation** on this diagram of the water cycle?



A 1
B 2
C 3
D 4

3 A liquid's **boiling point** is the temperature when a liquid begins to boil and _____.

A remains a liquid
B becomes a solid

4 Which statement **supports** the information on this chart?

Boiling Points of Various Liquids
water = 100° C
petroleum = 210° C
olive oil = 300° C

A All liquids have the same boiling point.
B Different liquids have different boiling

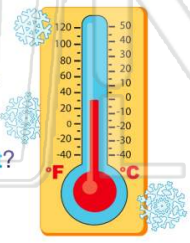
5

7

D 23°F

C melting point
D evaporation point

9 The thermometer in a freezer shows the freezing point of water. According to the thermometer, what is **water's freezing point**?



A 0°C
B 0°F
C 10°C
D 20°F

10 In degrees Celsius, what **temperature** does it have to be for it to **snow** outside?

A 10°C
B 32°C or lower
C 0°C or higher
D 0°C or lower

Science worksheets: Solids, liquids and gases.

Sci E

Name_____ Class_____ Date_____

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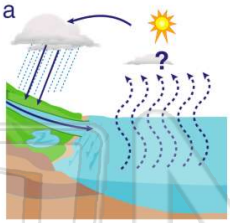

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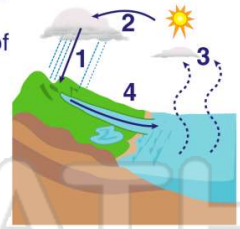

A 1
B 2
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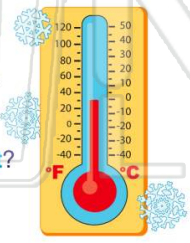


A 0°C
B 0°F
C 10°C
D 20°F

A

10 In degrees Celsius, what **temperature** does it have to be for it to **snow** outside?

A 10°C
B 32°C or lower
C 0°C or higher
D 0°C or lower

D

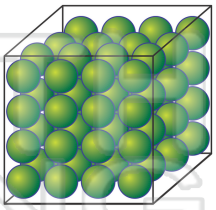
Science worksheets: Solids, liquids and gases.

Name_____ Class_____ Date_____

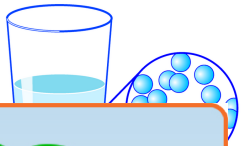
Match each of the following terms to its definition:

Gas	Boiling point	Liquid
Melting point	Freezing point	Solid

1. - a state of matter that has its own shape and never changes shape; an object with definite mass and volume



2. - a substance that has a definite volume, but no definite shape; a state of matter in which molecules are not as tightly packed as those in a solid; liquids take the shape of whatever they are po



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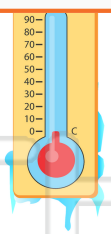
5. - the temperature when a liquid becomes a solid; water's freezing point is 0



6. - the temperature at which matter changes from a solid to a liquid; an ice cube's melting point is 0

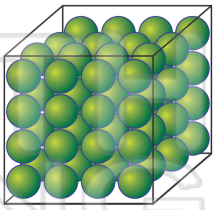
Science worksheets: Solids, liquids and gases.

Name_____ Class_____ Date_____

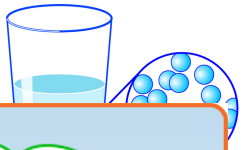
Match each of the following terms to its definition:

Gas	Boiling point	Liquid
Melting point	Freezing point	Solid

1. solid - a state of matter that has its own shape and never changes shape; an object with definite mass and volume



2. liquid - a substance that has a definite volume, but no definite shape; a state of matter in which molecules are not as tightly packed as those in a solid; liquids take the shape of whatever they are poure



3. gas take th mass a

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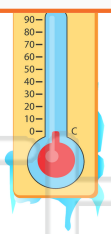
5. freezing point - the temperature when a liquid becomes a solid; water's freezing point is 0



6. melting point - the temperature at which matter changes from a solid to a liquid; an ice cube's melting point is 0