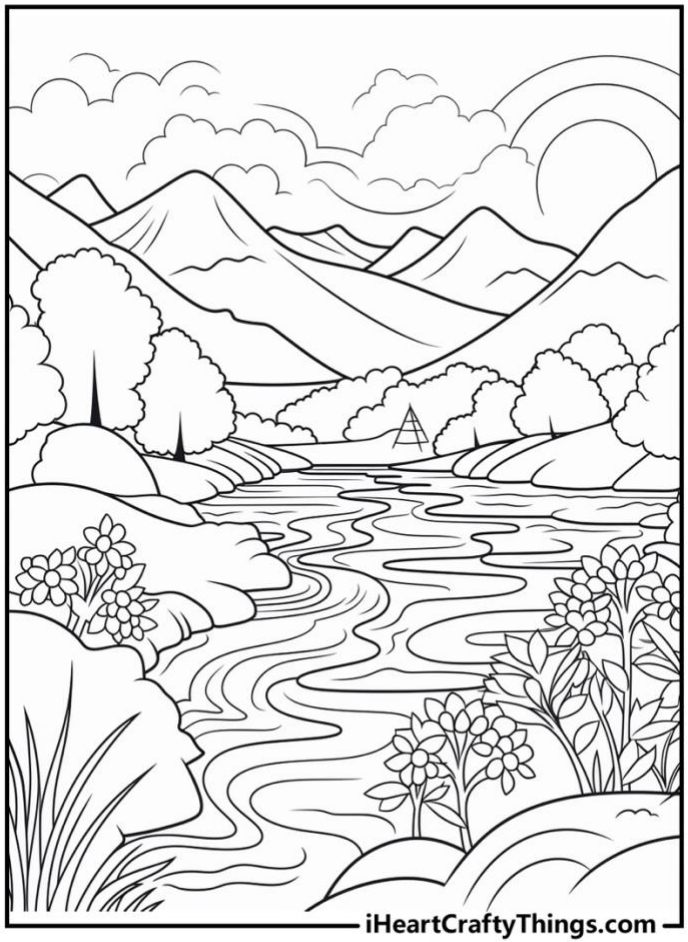
Comparing Solids, Liquids, and Gases

Engage

What To Do:

1. Identify three solids, one liquid and two gases in the picture below.
2. Place an S, L and G on each.
3. Can you find a fourth state of matter? Label it P.



4. What was the object that was made of the fourth state of matter?
5. What is the fourth state of matter?

Explore

Materials: Balloon filled with water and frozen, Balloon filled with water, Balloon blown up by teacher or students. **All should be about the same size.**
Small box

What To Do:

1. Your teacher will give your group three balloons.
2. Make observations about each balloon.

Balloon	Observations
Frozen	
Water	
Air	

3. Place each balloon on top of the box.
4. Make observations about each balloon.

Balloon	Observations
Frozen	
Water	
Air	

Questions:

1. Which of the balloons kept its shape when on the table or placed on the box?
2. Which balloon changed it shape to fit in the box?

3. Which balloon could change its shape to fill the box?

Explain

What To Do:

1. Watch the following video The Three States of Matter by Fuse School. https://www.youtube.com/watch?v=21CR01rlmv4
2. Answer the following questions.

1. Solids are:
   a. _____
   b. Have a _____shape.
   c. Have a _____volume.
   d. Cannot be _____
2. Liquids are:
   a. _____
   b. Have _____ shape.
   c. Have a _____volume.
   d. Cannot be _____
3. Gases are:
   a. _____
   b. Have _____ shape.
   c. Have a _____ volume.
   d. Can be _____
4. How are solids and liquids alike?

5. How are solids and liquids different?

6. How are liquids and gases alike?

7. How are liquids and gases different?

Elaborate

Materials: Beaker of water, bottle of food coloring

What To Do:

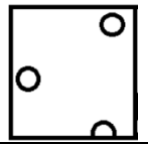
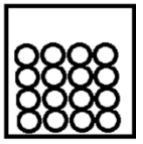
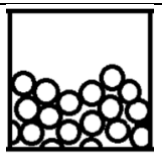
1. Your teacher will have a beaker of water and a bottle of food coloring.
2. They will gently place a drop of food coloring on the top of the water. The water will not be stirred or moved.
3. Predict what will happen to the food coloring. Circle your choice below.

It will stay on the top of the water.

It will sink to the bottom very rapidly.

It will gradually spread through the water.

4. Watch the video COO5 Particles-solid liquid gas by Ian Collier. https://www.youtube.com/watch?v=UnBoQe2rsgo
5. After watching the video label, the following pictures of atoms as solid, liquid or gas.
6. Describe the kinetic energy of the atoms.

Picture			
State			
Kinetic Energy of the atoms			

7. What happened to the food coloring?

8. Explain why that happened using what you saw in the video.

Solids, Liquids and Gasses

S B O V E Z K Q Q G M P U Y D
T S M O T A L K U D S B H T E
A S Q N G E R C Q S N T M D Y
T Y Q G O W N W D M A M Z G U
E G N Q A I D I L O S G R G H
O H L T L P T L F M D E N D Y
F B E I V Y X A O E N C O F P
M R J U W C R Z R E G I O X X
A R G Z Q Q Q F C B R H L K F
T W R G T M Z I R L I Y L F D
T O I D C T T I I O M V A M V
E I A F N E H Q Q F Z I B P F
R T S X N Z U F Q M J E G R O
R C N I V I B R A T I O N S W
J D K Q D A S V R F X F B K Z

Air
Frozen
Liquid
Vibration
Atoms
Gas
Solid
State of Matter
Kinetic Energy
Water
Solid
Vibration

Name _____ Period _____
Evaluate

Exit Ticket

Comparing Solids, Liquids, and Gases

1. Water that is frozen is a –
   a. Liquid
   b. Solid
   c. Gas
   d. Plasma

2. Atoms in solids vibrate, atoms and molecules in liquids and gases move around in their container. This movement is called –
   a. Inert energy
   b. Potential energy
   c. Kinetic energy
   d. Molecular energy

Directions: Write the state of matter the following statements are describing.

State of Matter	Description
3.	This substance is not rigid, has no fixed shape but has a fixed volume.
4.	This substance is rigid, has a fixed shape and a fixed volume.
5.	This substance is not rigid, has no fixed shape and no fixed volume.