BYJU'S
The Learning App

STATES OF MATTER

CLASS-4

QUESTIONS

Different States

From the list of things you can find in the picture below, categorise them based on their states into solids, liquids and gases, and fill the table below.


Rain


People


Soda


Sun


Bell


Crayons

Glue


Syrup


Helium


Computer


Rocket Exhaust


Lemonade


Smoke


Books


Steam


Milk


Soccer Ball


Hot Air


Pear


Oxygen


Gasoline


Hat


Ice


Flowers

Solids	Liquids	Gases

A Matter of States

Particles of a solid are packed closely together. The forces between the particles are strong enough to make sure that the particles cannot move freely; they can only vibrate. As a result a solid has a stable, definite shape and a definite volume. Solids can only change shape under the influence of force.

A fluid is a substance that can flow freely and takes up the shape of the container but retains its volume. When a solid is heated above its melting point, it becomes a liquid. A liquid can be converted to a gas by heating it to the substance's boiling point.

Gas molecules have either very weak bonds or no bonds at all, so they can move freely and quickly. Because of this, not only will a gas conform to the shape of its container, it will also expand to completely fill the container.

Using the information provided complete the table below. (One has already been done for you)

	Properties	Nature of Properties
 SOLIDS	Shape	**Definite shape**
	Volume	**Definite volume**
	Space between molecules	**Minimum**
	Intermolecular forces	**Strong**
 LIQUIDS	Shape	
	Volume	
	Space between molecules	
	Intermolecular forces	
 GASES	Shape	
	Volume	
	Space between molecules	
	Intermolecular forces	

Change in States

Matter can change states upon heating or cooling. These transitions from one state to another have names depending upon the initial and final state.

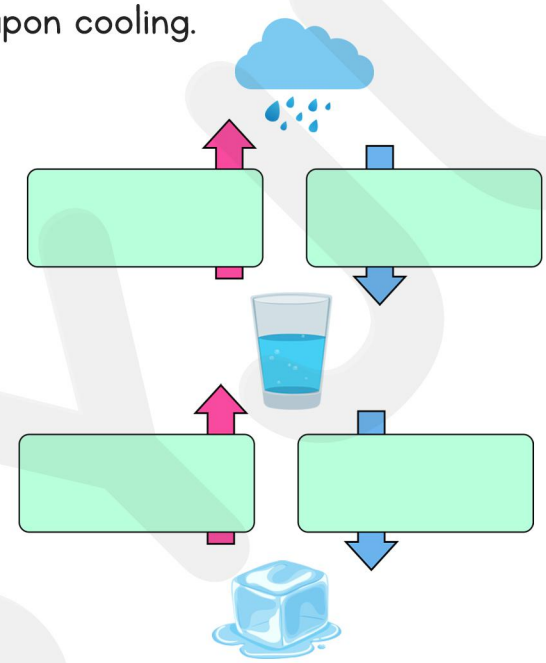
You have learnt about each of these in the video lessons. Your job is to fill in the blanks with correct answers. You can choose from the statements given below to fill in the blanks.

Statement - 1: The process in which a liquid transforms into a gas upon heating.

Statement - 2: The process in which a gas condenses into a liquid upon cooling.

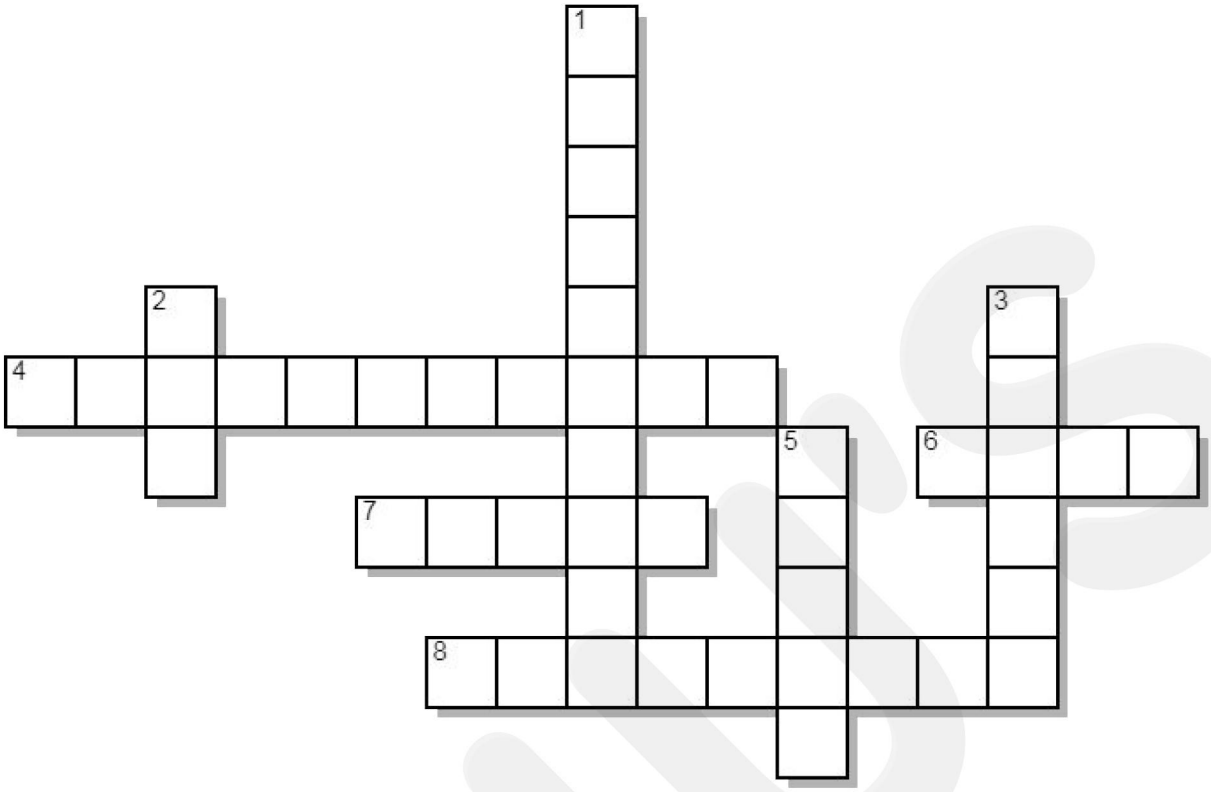
Statement - 3: The process in which a solid melts to form a liquid upon heating.

Statement - 4: The process in which a liquid solidifies to form a solid upon cooling.



Fun fact: A gas can directly change into a solid without first changing into a liquid if conditions are right. This process is known as **Deposition.** The reverse is also possible. When a solid changes into a gas, it is known as **Sublimation. Frost** on leaves in cold places is an example of deposition. When you add water to dry ice it directly changes into gaseous $\mathbf{CO_2}$.

Crossword



Across	Down
4. The process by which a liquid changes into vapour. **6.** Smallest particle of matter. **7.** The most rigid state of matter. **8.** A liquid will take the shape of its _____.	**1.** The process of direct transition from a gas to a solid. **2.** A state of matter that can expand indefinitely. **3.** Any substance that has mass and occupies space. **5.** Liquids and gases are also called _____.

Word search

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

Hints:

1. Universal solvent
2. What gets dissolved into a solvent?
3. In a solution (which is a mixture of a solute and a solvent) which do you typically have more of?
4. The ability of a given substance (solute) to dissolve into a solvent.
5. Solubility depends on this factor.
6. When no more solute dissolves in a solvent.
7. Solute + solvent = ?

Unscramble Words

Unscramble the following words using the hints provided below:

Time: 10 mins

1. Ldvsisigno
2. Ersrvlebei
3. Taauirsotn
4. Remtat
5. Apsalm
6. Inlootsu
7. Glwnfio
8. Taom
9. Mrpueateter

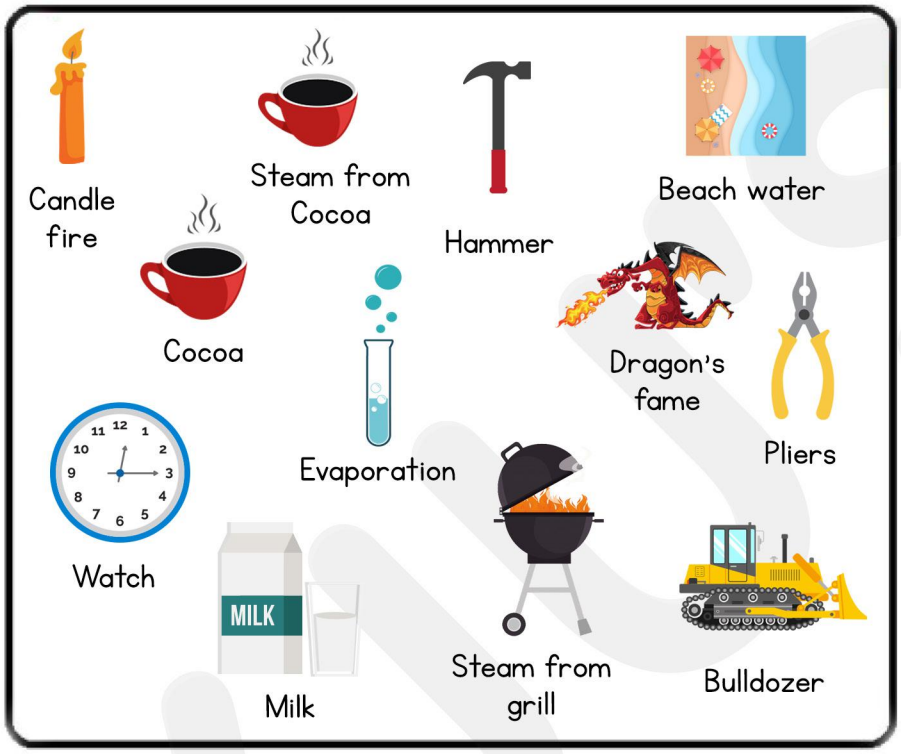
Hints:

1. The process of mixing a soluble substance in a solvent like water.
2. A process that could be reversed to its initial state.
3. The point at which no more solute will dissolve in the solvent.
4. Anything we can see touch or feel is _____.
5. A fourth state of matter beyond gases.
6. When we mix sugar and water it becomes a _____.
7. The process of transferring a liquid from one container to another.
8. Smallest particle of matter.
9. Increasing _____ increases solubility.

Sort the Mess

Task: Identify and categorise the examples given in the picture below into the states of matter they are in and fill the table.

Time: 15 mins.



Solid	Liquid	Gas

Processes

Name the process taking place in the following changes.

Time: 5 mins

Dry ice converting into CO_2

_____

Dew drops forming on leaves on a cold morning

_____

Water moving from one place to another

_____

Clouds forming from a waterbody

_____

Frost forming on a window pane during winter

_____

ANSWERS

Different States

Solids	Liquids	Gases
People	Rain	Sun
Bell	Soda	Helium
Crayons	Glue	Rocket Exhaust
Computer	Syrup	Smoke
Books	Lemonade	Steam
Soccer Ball	Milk	Hot Air
Pear	Gasoline	Oxygen
Hat		
Ice		
Flowers		

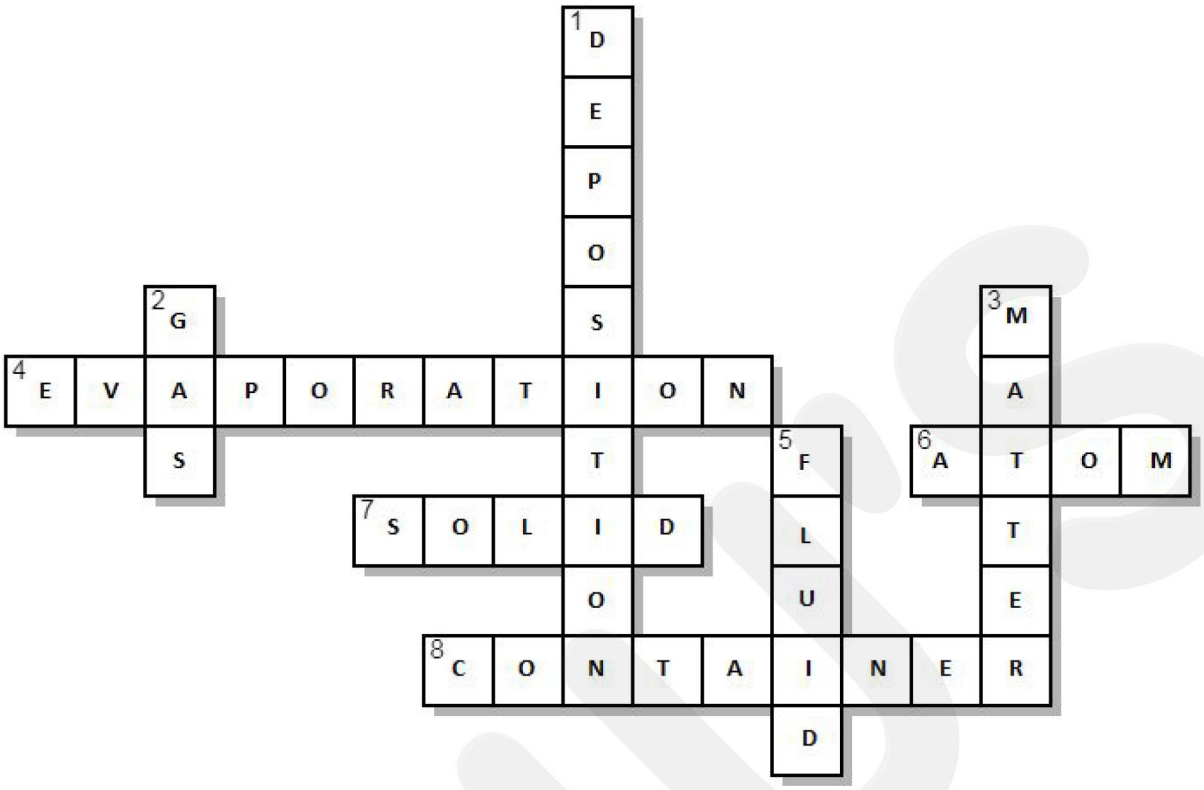
A Matter of States

	Properties	Nature of Properties
 **SOLIDS**	Shape	**Definite shape**
	Volume	**Definite volume**
	Space between molecules	**Minimum**
	Intermolecular forces	**Strong**
 **LIQUIDS**	Shape	**Takes the shape of the container**
	Volume	**Definite volume**
	Space between molecules	**Moderate**
	Intermolecular forces	**Moderate**
 **GASES**	Shape	**Takes the shape of the container**
	Volume	**No definite volume, compressible.**
	Space between molecules	**Maximum**
	Intermolecular forces	**Negligible**

Change in States

- The process in which a liquid transforms into a gas upon heating is known as **evaporation.**
- The process in which a gas condenses into a liquid upon cooling is known as **condensation.**
- The process in which a solid melts to form a liquid upon heating is known as **melting.**
- The process in which a liquid solidifies to form a solid upon cooling is known as **freezing.**

Crossword



Word search

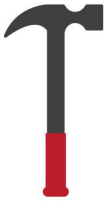
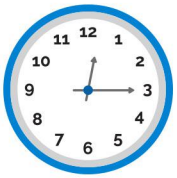
T	L	R	A	J	H	B	N	I	F	Z	S	Z	R	K
E	E	X	H	N	B	E	G	O	I	A	E	Z	O	W
M	S	A	U	A	E	T	T	L	T	W	L	T	G	P
P	O	K	B	B	S	H	N	U	Q	B	G	I	O	D
E	L	W	V	V	Y	M	R	E	J	T	G	P	G	U
R	U	X	B	I	B	A	B	X	V	N	V	G	R	K
A	B	M	L	E	T	A	T	F	B	L	D	M	N	E
T	I	V	J	I	H	V	T	J	Q	Y	O	S	C	T
U	L	I	O	R	U	X	B	I	B	A	A	S	N	U
R	I	N	M	H	K	N	H	J	R	R	V	O	C	L
E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

1. Water
2. Solute
3. Solvent
4. Solubility
5. Temperature
6. Saturation
7. Solution

Unscramble Words

Ldvsisigno	Dissolving
Ersrvlebei	Reversible
Taauirsotn	Saturation
Remtat	Matter
Apsalm	Plasma
Inlootsu	Solution
Glwnfio	Flowing
Taom	Atom
Mrpueateter	Temperature

Sort the Mess

Solid	Liquid	Gas
 Hammer	 Cocoa	 Steam from Cocoa
 Pliers	 Milk	 Steam from grill
 Bulldozer	 Beach water	 Dragon's fame
 Watch	 Candle fire	 Evaporation

Processes

1. Dry Ice converting into CO_2 is **sublimation.**
2. Dew drops forming on leaves on a cold morning is **condensation.**
3. Water moving from one place to another is known as **flow.**
4. Clouds forming from a waterbody is **evaporation.**
5. Frost forming on window panes during winters is **deposition.**