

Solids, Liquids and Gases

If possible, go to: <https://classroom.thenational.academy/lessons/solids-liquids-and-gases-74tp8t>, complete the introductory quiz and watch the lesson video.

- 1 Can you name:
- a) Two substances that are solid at room temperature
 - b) Two substances that are liquids at room temperature
 - c) Two substances that are gases at room temperature

- 2 Use the boxes below to draw diagrams to show the arrangement of the particles in a substance in each of the three states of matter. *Hint* There should always be the same number, and size, of particles.

Solid	Liquid	Gas

- 3 Circle the statement that best describes the arrangement of the particles in a solid:

Option 1

They have a random arrangement where all of them are touching

Option 2

They have a regular arrangement where none of them are touching

Option 3

They have a regular arrangement where all of them are touching

Option 4

They have a random arrangement where some of them are touching but others aren't

4 Circle the statement that best describes the arrangement of the particles in a liquid:

Option 1

They have a random arrangement where all of them are touching

Option 2

They have a regular arrangement where none of them are touching

Option 3

They have a regular arrangement where all of them are touching

Option 4

They have a random arrangement but all particles are still touching

5 Circle the statement that best describes the arrangement of the particles in a gas:

Option 1

They have a random arrangement where none of them are touching

Option 2

They have a regular arrangement where none of them are touching

Option 3

They have a regular arrangement where all of them are touching

Option 4

They have a random arrangement where some of them are touching but others aren't

6 Use the following phrases to complete the table:

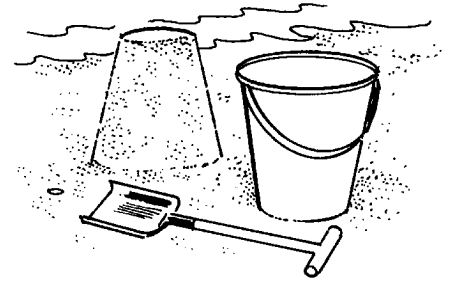
Changes shape to fit the base of its container	Particles are strongly joined (has a fixed shape)
Particles flow but cannot be compressed	Changes volume to fill the whole container
Can be compressed	Does not flow, cannot be compressed

State of Matter	Properties
Solid	
Liquid	
Gas	

Some substances have properties which make it difficult for us to decide whether they are really solids or liquids. Sand is a good example.

If you look at individual grains of sand, you can see that they have definite shapes. Each grain is very hard, and keeps its shape. You can make wet sand into a sand castle.


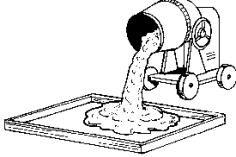
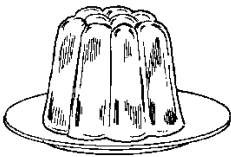
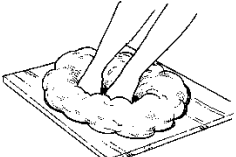
But if you have a bucket full of dry sand, you can pour it. The ability to flow is a property of liquids but not solids, so sand appears to have the properties of both.



1 Write down all the reasons why you might think sand is a solid.

2 Why might we also think that sand is a liquid?

3 Choose one of the following materials:

			
<i>custard</i>	<i>concrete</i>	<i>jelly</i>	<i>bread dough</i>

Imagine you are writing to a friend. Describe the properties of the material, without mentioning its name, so that your friend can guess what the material is.

4 Is the material a solid or a liquid?

a Write down all the reasons for thinking it is a solid.

b Write down all the reasons for thinking it is a liquid.

c Can it change? For instance, is custard always runny? How can you make it change?
