

States of Matter Introduction Solids, Liquids and Gases

twinkl

Starter: What Is Matter?

- Everything is made up of matter.
- So what is matter?
- How do we know it exists?



Matter

- Everything is made up of matter.
- Matter is any substance that has **mass** and takes up space (**volume**).
- Your desk is made of matter.
- Your pencil is made of matter.
- You are made of matter!



Matter

There are **five** states of matter.

You will learn about three of these in KS2 Science.

The 3 states of matter you need to know are:

solid

liquid

gas



Properties of Types of Matter

What makes a **solid** different from a **liquid**, or a **gas**?

These features are called **properties**.
(In science this doesn't mean a house!)



For example:
hard, soft, can flow, invisible.

You have already used some properties to successfully identify solids, liquids and gases around you

Properties of Types of Matter

What makes a **solid** different from a **liquid**, or a **gas**?



Properties of Types of Matter



You are going to **describe the properties** of the three states of matter: solids, liquids and gases.

Points to include:

- What does it feel like?
- What does it look like?
- Can you squash it? Pour it?
- Plus anything else you can think of!

Not sure where to start? Imagine you were describing your state of matter to an alien from outer space!

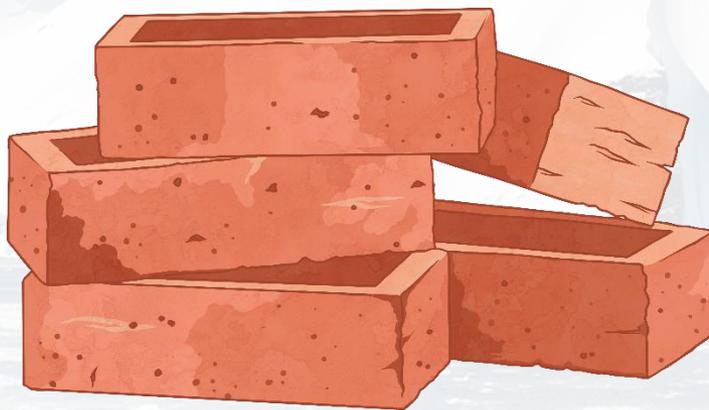
Challenge:

Can you write your description in 20 words or less?



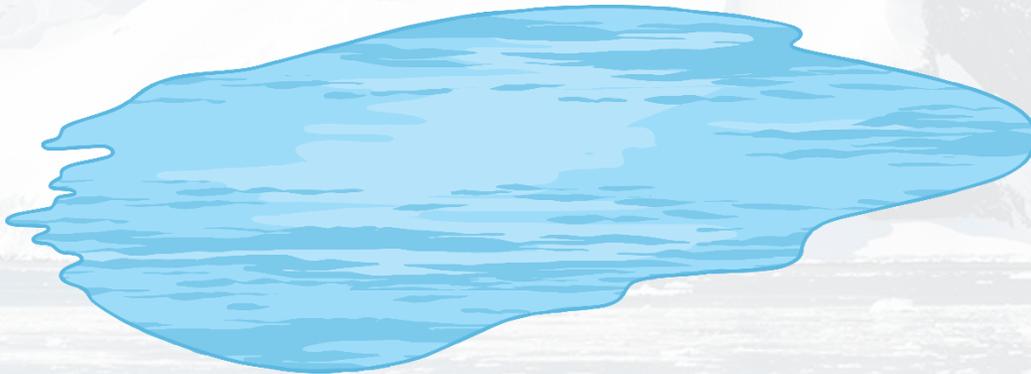
Properties Key Points: Solids

- Have a fixed shape.
- Cannot be squashed (compressed).
- Cannot flow.
- Particles cannot move, but can vibrate on the spot.



Properties Key Points: Liquids

- No fixed shape - takes the shape of the container.
- Cannot be squashed (compressed).
- Can flow.

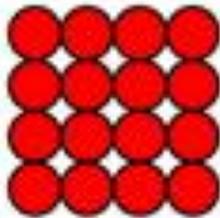


Properties Key Points: Gases

- No fixed shape - takes the shape of the container.
- Can be squashed (compressed).
- Can flow.



SOLIDS



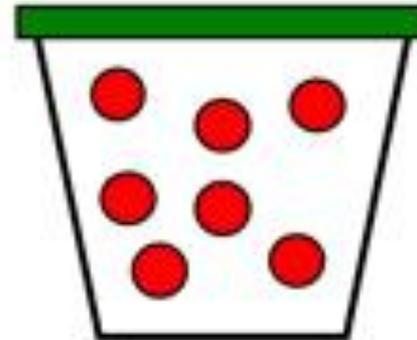
The molecules are held together with strong bonds. They don't move very easily so SOLIDS can keep their own shape and size

LIQUIDS

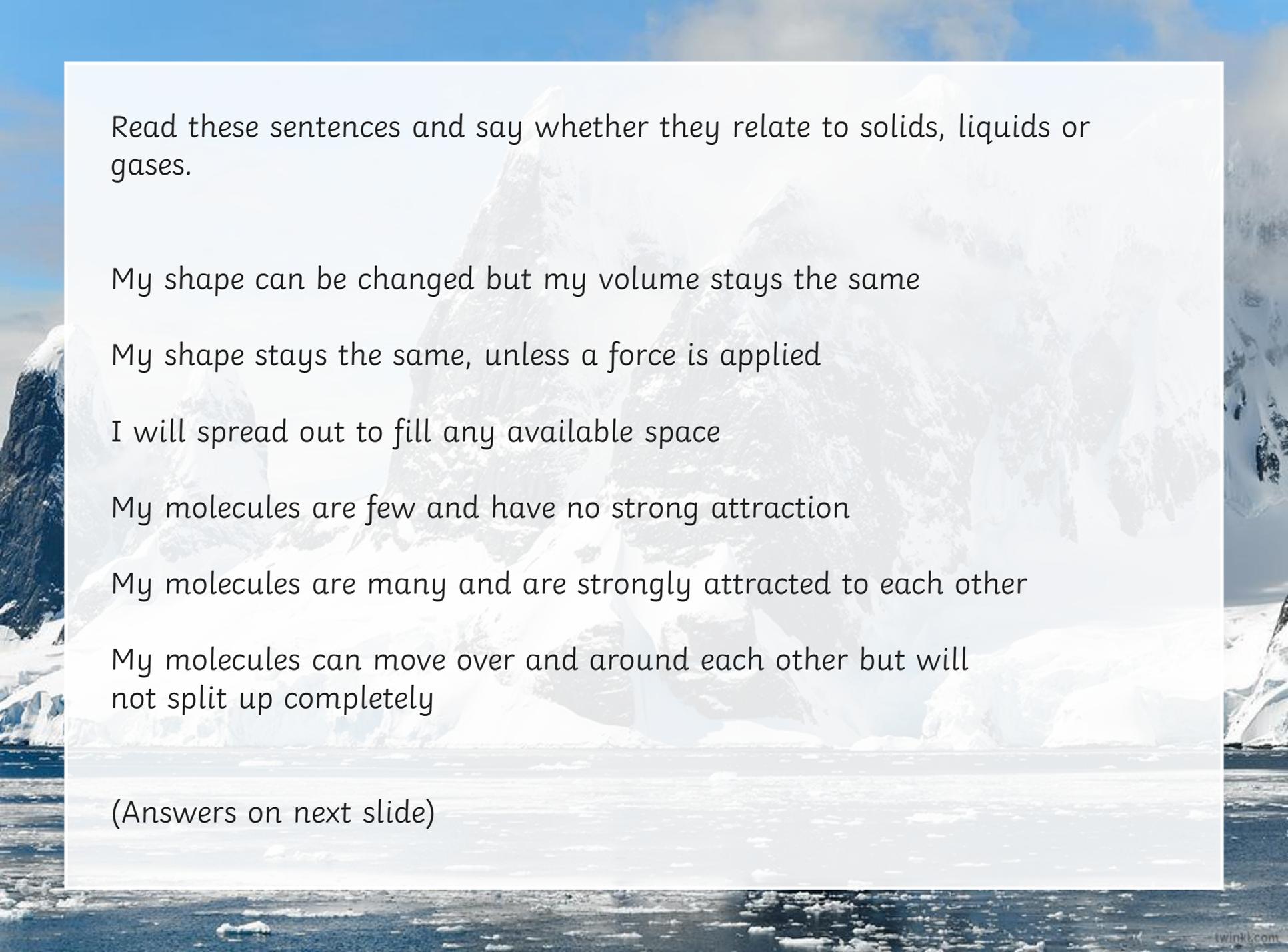


The molecules have weaker bonds. They can move around slightly so LIQUIDS can flow. They can't keep their shape unless they're in a container.

GASES



The molecules are free to move around. They can spread around an open space quickly and freely. GASES can't keep their shape unless they are kept in a *sealed* container.



Read these sentences and say whether they relate to solids, liquids or gases.

My shape can be changed but my volume stays the same

My shape stays the same, unless a force is applied

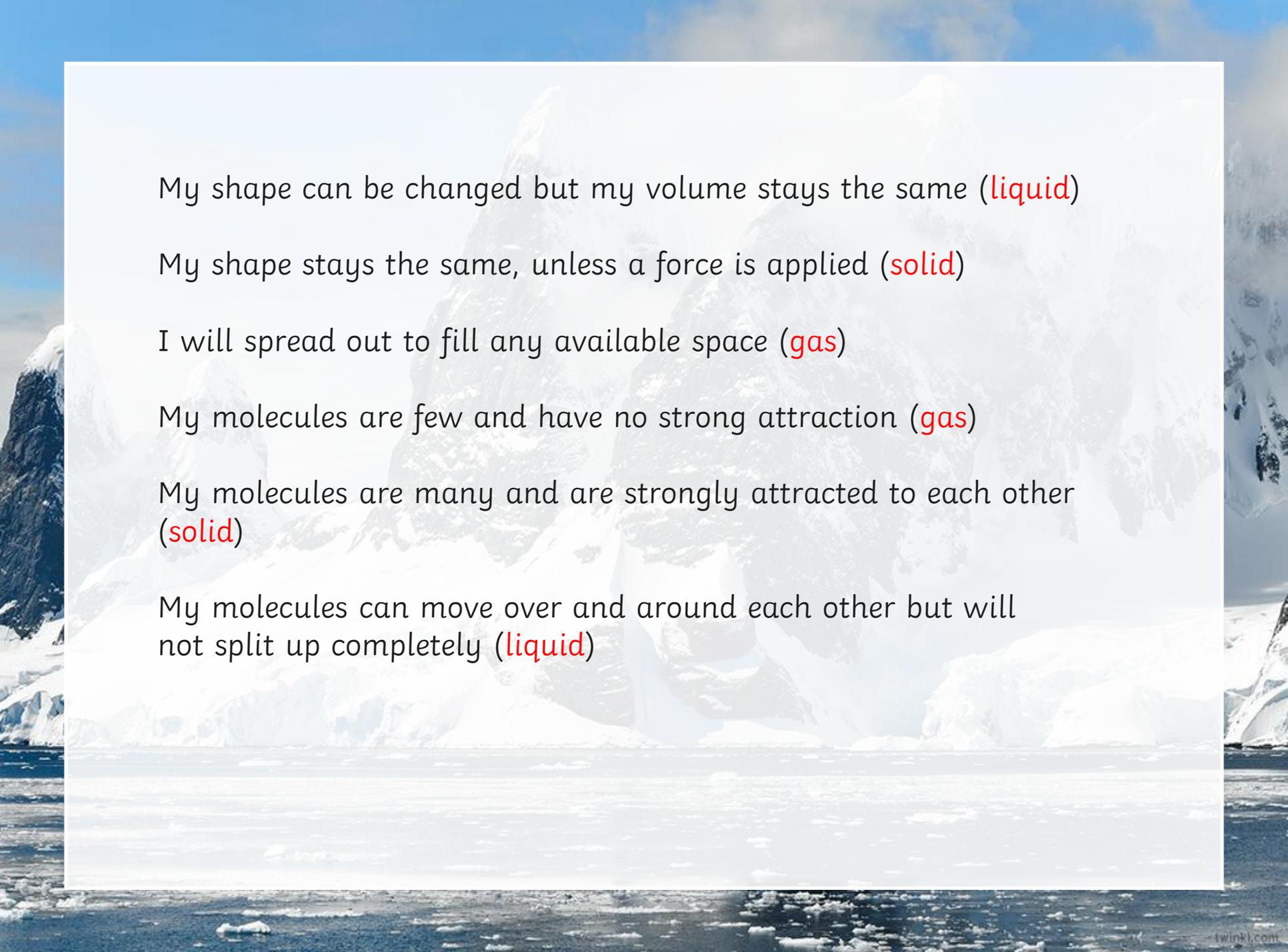
I will spread out to fill any available space

My molecules are few and have no strong attraction

My molecules are many and are strongly attracted to each other

My molecules can move over and around each other but will not split up completely

(Answers on next slide)



My shape can be changed but my volume stays the same (**liquid**)

My shape stays the same, unless a force is applied (**solid**)

I will spread out to fill any available space (**gas**)

My molecules are few and have no strong attraction (**gas**)

My molecules are many and are strongly attracted to each other (**solid**)

My molecules can move over and around each other but will not split up completely (**liquid**)