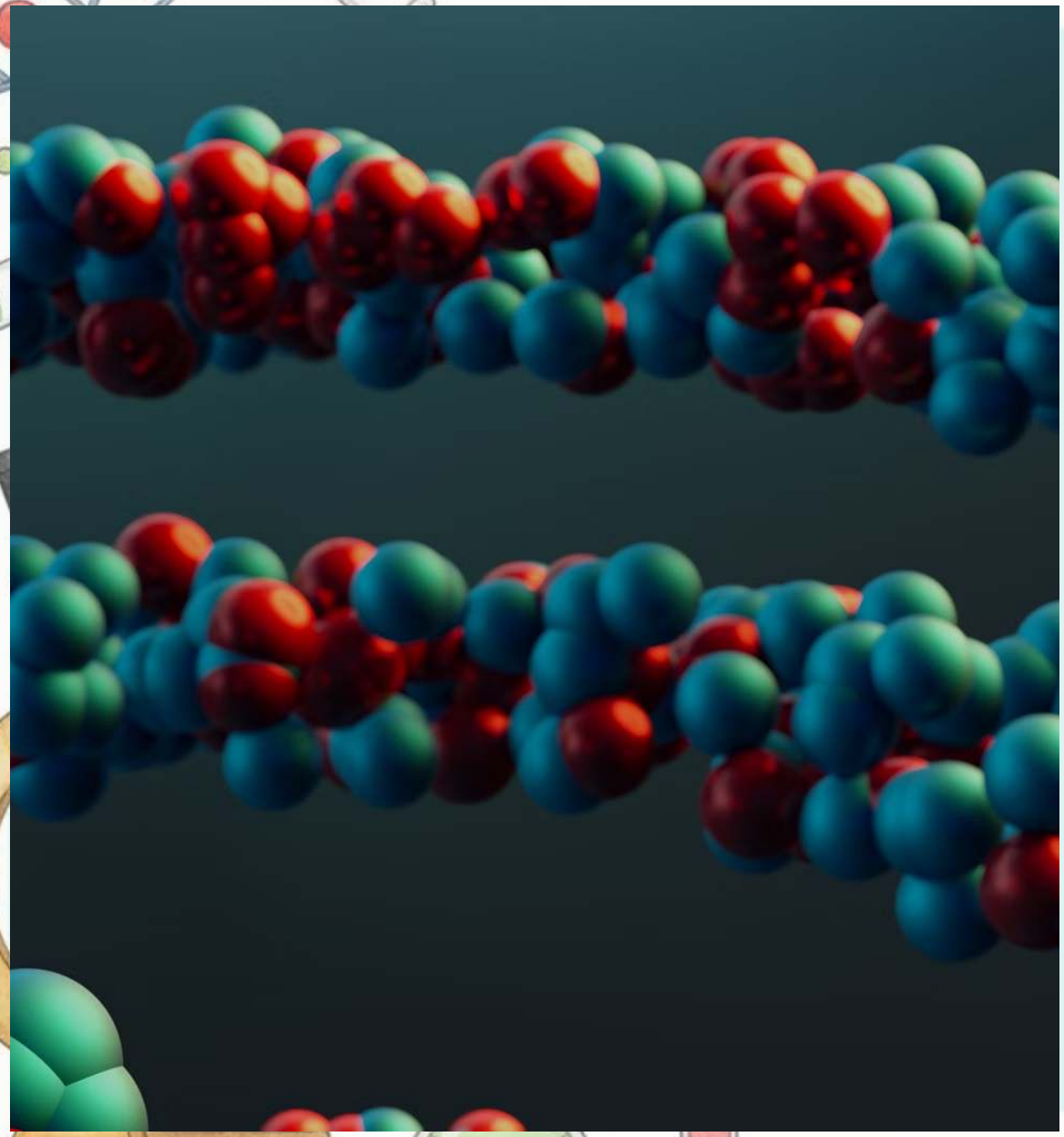


Matter and its interactions

Describe the properties of solids, liquids, and gases and explain how matter can change state

SCIENCE · GRADE 5 · 45 MIN

TODAY

What we will do

Describe the properties of solids, liquids, and gases and explain how matter can change state

1. I can identify and describe the properties of solids, liquids, and gases.
2. I can give an example of matter changing from one state to another.
3. I can explain what happens to particles when matter heats up or cools down.
4. I can use evidence from an observation to support a claim about matter.

LOOK CLOSELY

Three bags, one substance. How is that possible?

An ice cube, a bag of water, and a balloon full of air. What do they have in common?

TALK *Tell your partner your best guess.*

KEY IDEAS

What is matter?

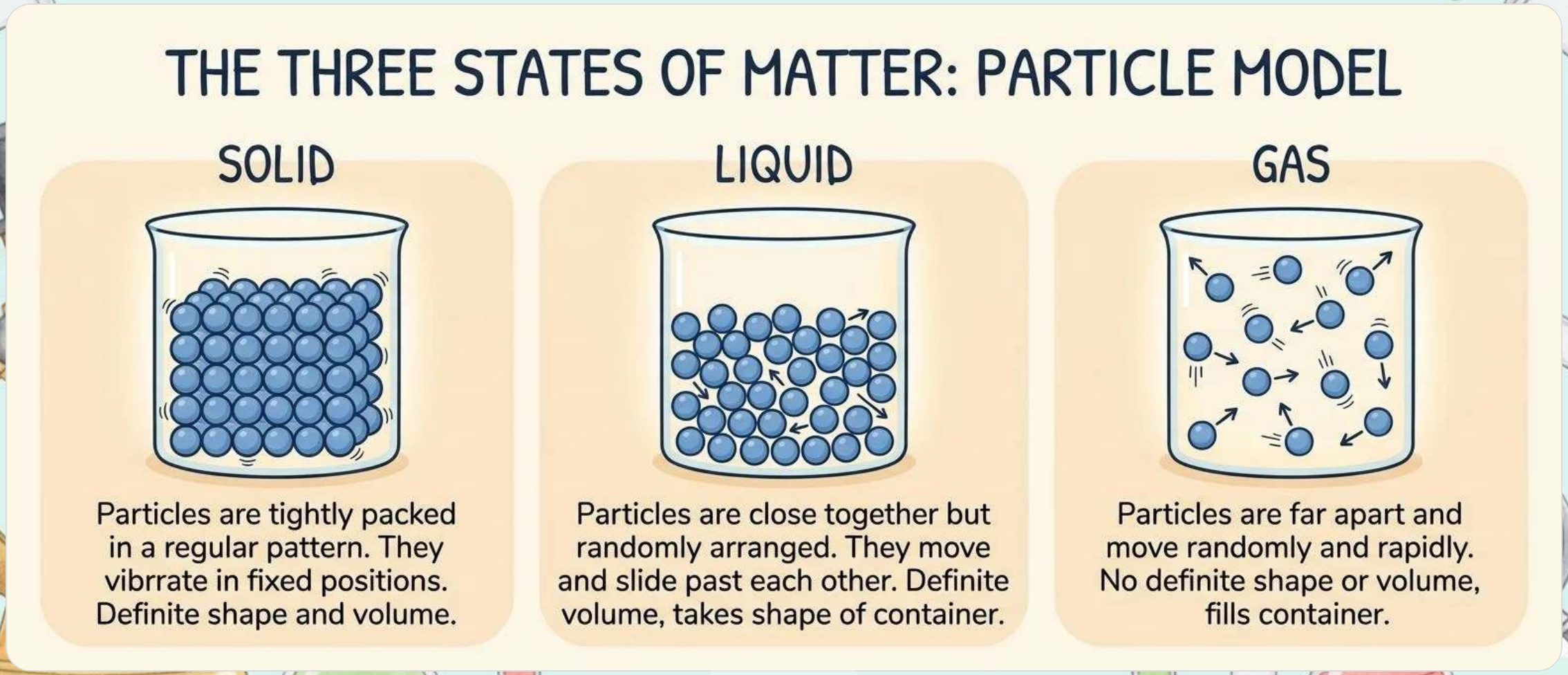
Every state of matter shares two things: mass and space.

Matter	Anything that has mass and takes up space.
Solid	Holds its own shape. Particles are packed tightly together.
Liquid	Takes the shape of its container. Particles slide past each other.
Gas	Spreads out to fill any space. Particles move fast and far apart.

THE THREE STATES

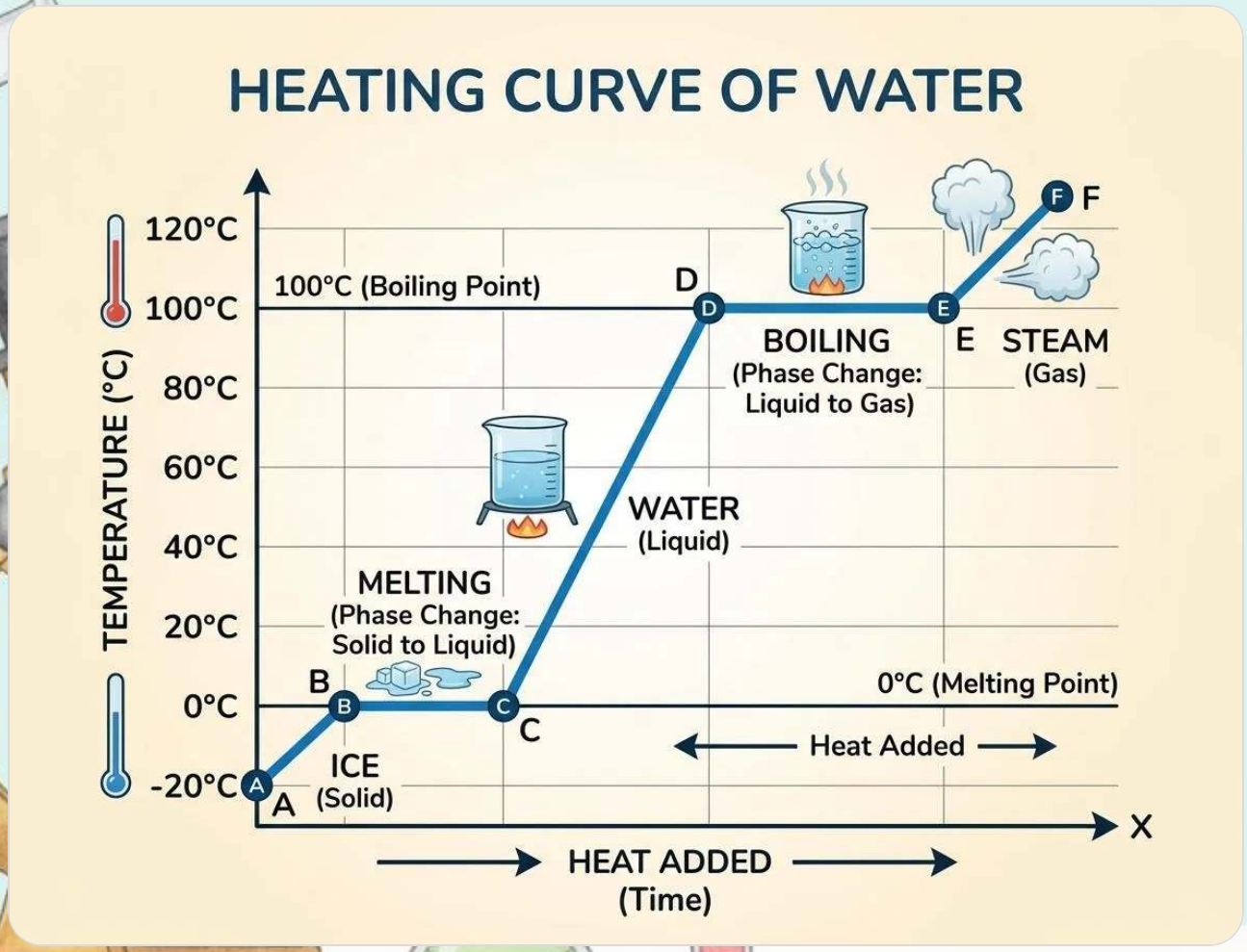
Solids, liquids, and gases differ by particle arrangement

Particles in a solid sit tightly packed. In a liquid they slide. In a gas they fly apart.



Heat makes particles move. Cold pulls them back together.

Add heat and particles speed up, spread out, and change state. Remove heat and they slow down and pack together again.



EXAMPLE

Ice melts to water at 0°C. Water boils to steam at 100°C.

⚠ WATCH OUT

The substance is still the same matter. Only the arrangement of particles changes, not what they are made of.

MATCH IT UP

Which state of matter is it?

Match each substance on the left to its state of matter on the right.

SUBSTANCE	STATE
1 Rock	a Gas
2 Juice	b Solid
3 Steam	c Liquid
4 Clay	d Solid
5 Smoke	e Gas

ANSWERS

Here are the matches

Check your answers. For each one, can you say WHY?

SUBSTANCE	STATE
1 Rock	b Solid
2 Juice	c Liquid
3 Steam	a Gas
4 Clay	d Solid
5 Smoke	e Gas

Sort, record, and explain states of matter

Emerging

picture sort

Match six picture cards to solid, liquid, or gas. Write one property under each using the word bank.

This is a _____ because _____.

MATERIALS

sorting mat
picture cards
word bank strip

Circle the state with the most tightly packed particles.

Developing

sort and record

Sort the six cards into a table. Write one sentence about what happens to particles when ice melts.

When ice melts, the particles _____.

MATERIALS

recording table
picture cards
sentence starter strip

Write a claim and one piece of evidence for one card.

Extending

investigate and argue

Sort the six cards and add two of your own. Describe a state change and explain what happens to particles.

My claim is _____ because _____.

MATERIALS

investigation journal
picture cards
pencil

Write a claim about conservation of matter with reasoning.

All groups use the six picture cards: steam, rock, juice, smoke, clay, mercury.

THINK AND SHARE

Talk it through with your partner

Name one solid, one liquid, and one gas from today.

Which state has the most tightly packed particles?

What happens to particles when matter heats up?

What evidence from today supports your answer?

💬 SENTENCE STARTER *I think the particles are.. Because..*

TODAY WE LEARNED

Three things to remember

- ✓ I can describe solids, liquids, and gases by how their particles are arranged.
- ✓ I can give an example of matter changing state when heat is added or removed.
- ✓ I can use evidence from an observation to support a claim about matter.