🌡️ The six phase changes

Date _____ Topic 1/3

CUES · QUESTIONS

1. Solid → gas directly?
2. Gas → solid directly?
3. Gas → liquid?
4. Liquid → gas (class name)?

Cover the notes. Answer each cue from memory.

NOTES

1 · Worked example Copy one example from the page. Next to each line write WHY in a few words.

2 · Fill in the blanks Cover the steps and redo it. Leave a gap where you are unsure.

3 · Your turn A new question. Then check it against the answer.

SUMMARY — IN MY OWN WORDS, TWO SENTENCES

Heating curve of water

Date _____ Topic 2/3

CUES · QUESTIONS

1. Diagonal line on a heating curve?
2. Horizontal line?
3. Water: melting and boiling temperatures?
4. Why is the temperature constant during boiling?

Cover the notes. Answer each cue from memory.

NOTES

1 · Worked example Copy one example from the page. Next to each line write WHY in a few words.

2 · Fill in the blanks Cover the steps and redo it. Leave a gap where you are unsure.

3 · Your turn A new question. Then check it against the answer.

SUMMARY — IN MY OWN WORDS, TWO SENTENCES

🌡️ Kinetic energy: rotational, vibrational, translational

Date _____ Topic 3/3

CUES · QUESTIONS

1. Kinetic energy?
2. Temperature increases → ?
3. Rotational?
4. Vibrational?

Cover the notes. Answer each cue from memory.

NOTES

1 · Worked example Copy one example from the page. Next to each line write WHY in a few words.

2 · Fill in the blanks Cover the steps and redo it. Leave a gap where you are unsure.

3 · Your turn A new question. Then check it against the answer.

SUMMARY — IN MY OWN WORDS, TWO SENTENCES

🌡️ Phase Changes & Energy • Formula and trap sheet

Everything you need before a test, on the fewest pages. Fold it and keep it in your binder.

The six phase changes

REMEMBER

- s→l melting · l→s freezing · l→g evaporation · g→l condensation
- s→g sublimation · g→s deposition (both skip the liquid)

WATCH OUT

- Frost = freezing ✕ → frost = deposition (vapour → ice) ✓

Heating curve of water

FORMULAS

$\text{diagonal} \Rightarrow \text{temperature changes};\quad \text{horizontal} \Rightarrow \text{phase changes}$ — The one rule for reading any heating or cooling curve

REMEMBER

- Diagonal = temperature changing (one phase). Horizontal = phase changing (two phases), T constant.
- Water: 1 ice warms · 2 melts at 0 °C · 3 liquid warms · 4 boils at 100 °C · 5 steam warms.

WATCH OUT

- Heat added → temperature must rise ✕ → not on the flat parts ✓
- Flat part = one phase ✕ → two phases together ✓

Kinetic energy: rotational, vibrational, translational

REMEMBER

- Kinetic energy = energy of motion; temperature up → faster → more kinetic energy.
- Rotational spins (bonds same) · vibrational stretches/bends in place · translational moves place to place.

WATCH OUT

- Vibrating molecule moves across the box ✕ → vibration is in place; moving across is translational ✓