

## Changes of State – Question Plan

### Big Ideas

- Solids, liquids, gases; properties; changes of state (evaporation, condensation, melting, freezing); reversible; irreversible; dissolving;

### Possible Misconceptions

- Difficulty in applying ideas to a new context, particularly if water is not involved (need to support generalisation)
- Freezing only happens at 0 °C or 'when it's cold'
- Confusion between melting and dissolving
- Metals (e.g. gold) and rocks do not melt (only ice?)
- Water is the only liquid

### Questions to probe conceptual understanding...

- Where does the water on the washing go?
- Why does washing dry quicker on a warm day?
- How does the water get from the washing onto the window? Can you describe its journey?
- Why does water condense on the window more than in other places – the TV screen, for example?
- Are there examples of other substances that evaporate and condense?
- Why does the lava turn solid? Why doesn't it stay runny?
- Are there examples of substances that freeze at different temperatures?
- What is similar about melting and dissolving? Why are they different?
- How do you know that the egg isn't freezing? Why isn't this a change of state?
- Can you think of any other changes that can't be reversed / in which something new is made?
- How can you tell whether a change is a change of state?

### Questions to make meaning...

- Where do you see condensation in your house?
- What happens to butter when you put it on your toast?
- Can you melt bread? What happens when you heat it? Is that a change of state?
- What other changes of state do you see at home?