Learning Journey – 7B Particle Theory

What have I done previously in my learning journey?	
Previously….	**You have learnt previously about states of matter. This has involved:** • comparing and grouping materials together, according to whether they are solids, liquids or gases • observing that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • identifying the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature • demonstrating that dissolving, mixing and changes of state are reversible changes
In this topic…	You will learn about the properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure. You will also use the particle model to explain changes of state.

We will develop our learning by studying the following each lesson:	RAG	Skills in Science checklist
7B.01 The Particle Model • Describe how materials are made up of particles • Use the particle model to explain why different materials have different properties		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
7B.02 States of Matter • Describe the properties of a substance in its three states • Use ideas about particles to explain the properties of a substance in its three states		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
7B.03 Melting and Freezing • Use the particle model to explain changes of state involving solids and liquids • Investigate the melting point of stearic acid • Interpret data about melting points		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
7B.04 Boiling • Use the particle model to explain boiling • Interpret data about changes of state		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
7B.05 More Changes of State • Describe changes of state involving gases • Use the particle model to explain evaporation and condensation • Use evaporation and boiling to prepare copper sulfate crystals		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
7B.06 Diffusion • Use the particle model to explain diffusion • Use knowledge of diffusion to test what factors affects the rate of diffusion		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication
7B.07 Gas Pressure • Use the particle model to explain gas pressure • Describe the factors that affect gas pressure		☐ Scientific Methods ☐ Practical ☐ Number skills ☐ Application ☐ Communication

Key Vocabulary

state	**matter**	**solid**	**liquid**	**gas**	**melting**	**change of state**	**freezing**	**melting point**
conserve	**boiling**	**boiling point**	**evaporation**	**condensation**	**sublimation**	**diffusion**	**collide**	**gas pressure**

Future Learning	At GCSE you will learn that the particle model is widely used to predict the behaviour of solids, liquids and gases and this has many applications in everyday life. It helps us to explain a wide

	range of observations and it also explains why it is difficult to make a good cup of tea high up a mountain!
In careers	Engineers use these principles when designing vessels to withstand high pressures and temperatures, such as submarines and spacecraft.