

Year 7: Chemical World- The Nature of Matter

	Check	Date
Revise assumed knowledge: ST3-12MW identifies the observable properties of solids, liquids and gases, and that changes made to materials are reversible or irreversible	<input type="checkbox"/>	
ST3-13MW describes how the properties of materials determine their use for specific purposes		
CW1 The properties of the different states of matter can be explained in terms of the motion and arrangement of particles. (ACSSU151)		
STATES OF MATTER		
4CW1a. describe the behaviour of matter in terms of particles that are continuously moving and interacting	<input type="checkbox"/>	
4CW1f. identify the benefits and limitations of using <u>models</u> to explain the properties of solids, liquids and gases ✨	<input type="checkbox"/>	
Define the term matter	<input type="checkbox"/>	
Define the terms solid, liquid, gas, atom, element and compound	<input type="checkbox"/>	
Identify the particle theory of matter	<input type="checkbox"/>	
Describe the properties of solids, liquids and gases in terms of their particle movement	<input type="checkbox"/>	
CODE: 7CW1 First-Hand Investigation: Compression test. Fill 3 syringes; one with air, one with water and one with solid (eg sand). Pass around class and ask students to place finger over end and try and compress. Explain observations	<input type="checkbox"/>	
CODE: 7CW2 First-Hand Investigation: Modelling Matter. In groups, students are to construct models to represent the particle arrangement in the three states of matter	<input type="checkbox"/>	
Identify the benefits and limitations of using models in science	<input type="checkbox"/>	
Identify the specific benefits and limitations of using models to explain the properties of solids, liquids and gases	<input type="checkbox"/>	
CODE: 7CW3 First-Hand Investigation: Solid or liquid. Make up cornflour mix that is of consistency that can be made into a ball and thrown around. Outside attempt to pass ball between students. Compare to video of pool of cornflour with men running on it. Explain observations	<input type="checkbox"/>	
LITERACY SET 1: COSMOS ARTICLE	<input type="checkbox"/>	
Assessment: Oxford online test- States of Matter Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	<input type="checkbox"/>	
PHYSICAL PROPERTIES OF ELEMENTS		
4CW1e. explain density in terms of a simple particle model	<input type="checkbox"/>	
Define the terms density, mass and volume	<input type="checkbox"/>	
Identify density as a measure of the relationship between mass and volume	<input type="checkbox"/>	
CODE: 7CW4 First-Hand Investigation and Numeracy: Density. Determine the density of a range of metal cubes (1x1x1cm). $D = m/v$. Graph results	<input type="checkbox"/>	

Explain the relationship between density and the mass of particles	<input type="checkbox"/>	
LITERACY SET 2: MIXED ACTIVITIES	<input type="checkbox"/>	
Assessment: Oxford online test- Physical properties of Matter Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	<input type="checkbox"/>	
HEATING MATTER		
4CW1b. <i>relate an increase or decrease in the amount of heat energy possessed by particles to changes in particle movement</i>	<input type="checkbox"/>	
Define the terms energy, heat, temperature, expansion, contraction, conductivity, pressure	<input type="checkbox"/>	
Relate changes in the heat energy of a substance to changes in movement of particles	<input type="checkbox"/>	
Illustrate the effect of heating and cooling on the three states of matter	<input type="checkbox"/>	
4CW1c. use a simple particle model to predict the effect of adding or removing heat on different states of matter	<input type="checkbox"/>	
Recall the definition of a model	<input type="checkbox"/>	
Recall the benefits and limitations of models	<input type="checkbox"/>	
Describe , using the particle model, the changes of state when adding or removing heat energy from different states	<input type="checkbox"/>	
CODE: 7CW5 First-Hand Investigation(s): Expansion and contraction - Ball and chain - Heating and cooling a liquid. Conical flask, rubber bung, glass tube. Fill with water + food colouring (Oxford pg161) - Heating and cooling a gas. Conical flask with balloon on top. Put in ice and then hot water (Oxford pg162) - Explain all observations in terms of physical properties of matter heat energy and particle movement that occur	<input type="checkbox"/>	
4CW1d. relate changes in the physical properties of matter to heat energy and particle movement that occur during observations of evaporation, condensation, boiling, melting and freezing	<input type="checkbox"/>	
Define the terms melting point, boiling point, evaporation, condensation and freezing	<input type="checkbox"/>	
Relate the changes in the heat energy of a substance to changes in the movement of particles	<input type="checkbox"/>	
Illustrate the processes of evaporation, condensation, boiling, melting and freezing	<input type="checkbox"/>	
Relate the changes in the physical properties of a substance during changes of state to heat energy and particle movement	<input type="checkbox"/>	
CODE: 7CW6 First-Hand Investigation: From ice to steam. Oxford pg167 Record temperature of ice water every minute and graph. Plot and explain results. Include latent heat.	<input type="checkbox"/>	
CODE: 7CW7 First-Hand Investigation: Effect of salt on melting point. Ice cubes floating in water. Cotton string on top. Sprinkle salt on string. Leave for 10sec. Lift out. Observe. Explain.	<input type="checkbox"/>	

4CWadd6 Explain the changes in pressure of gases in terms of increases or decreases in the frequency of particle collisions.	<input type="checkbox"/>	
Identify the term collision	<input type="checkbox"/>	
Describe pressure in terms of frequency of particle collisions	<input type="checkbox"/>	
Explain the changes in pressure of gases in terms of increases or decreases in the frequency of particle collisions	<input type="checkbox"/>	
CODE: 7CW8 First-Hand Investigation: Water and Air pressure. Air pressure pushing water balloon into conical flask. Observe. Explain.	<input type="checkbox"/>	
Demonstration: Water and Air pressure. Heat conical flask containing bung and long glass tube through it. When boiled, turn upside down and place glass tube into beaker of water- Water fountain. Observe. Explain. Safety is essential	<input type="checkbox"/>	
NUMERACY AND SKILLS SET	<input type="checkbox"/>	
Assessment: Oxford online test- Heating Matter Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	<input type="checkbox"/>	
Assessment: The Nature Of Matter Chapter Test	<input type="checkbox"/>	
Comments and Suggested improvements		
<p>Name: _____ Signature: _____ Date: _____</p>		