

## CHEMISTRY

Learning objectives I can:	I can do this very well	I can do this quite well	I need to do more work on this
<b>3.1</b> Describe a covalent bond as a pair of electrons shared between two atoms			
<b>3.2</b> Recall that covalent bonding results in the formation of molecules			
<b>3.3</b> Explain the formation of simple molecular, covalent substances using dot and cross diagrams, including:			
<b>a</b> hydrogen			
<b>b</b> hydrogen chloride			
<b>c</b> water			
<b>d</b> methane			
<b>H e</b> oxygen			
<b>f</b> carbon dioxide			
<b>HSW 1</b> Present information using scientific conventions and symbols			
<b>3.5</b> Describe the properties of typical simple molecular, covalent compounds, limited to:			
<b>a</b> low melting points and boiling points, in terms of weak forces between molecules			
<b>b</b> poor conduction of electricity			
<b>3.6</b> Demonstrate an understanding of the differences between the properties of simple molecular, covalent substances and those of giant molecular, covalent substances, including diamond and graphite			
<b>H 3.7</b> Explain why, although they are both forms of carbon and giant molecular substances, graphite is used to make electrodes and as a lubricant, whereas diamond is used in making cutting tools			
<b>HSW 3</b> Describe how phenomena are explained using scientific models			
<b>3.4</b> Classify different types of elements and compounds by investigating their melting points and boiling points, solubility in water and electrical conductivity (as solids and in solution) including sodium chloride, magnesium sulfate, hexane, liquid paraffin, silicon(IV) oxide, copper sulfate, and sucrose (sugar)			
<b>3.8</b> Describe the separation of two immiscible liquids using a separating funnel			
<b>3.9</b> Describe the separation of mixtures of miscible liquids by fractional distillation, by referring to the fractional distillation of liquid air to produce nitrogen and oxygen			
<b>HSW 5</b> Plan to test a scientific idea, answer a scientific question or solve a scientific problem			
<b>3.10</b> Describe how paper chromatography can be used to separate and identify components of mixtures, including colouring agents in foodstuffs			
<b>3.11</b> Evaluate the information provided by paper chromatograms, including the calculation of <i>R<sub>f</sub></i> values, in a variety of contexts, such as the food industry and forensic science			
<b>HSW 4</b> Identify questions that science cannot address and explain why these questions cannot be addressed.			