

Prior Learning	<ul style="list-style-type: none"> • KS3 particles • C1 atomic structure 			
Lesson Number	AQA Spec	Title	Content	Assessment/ Homework
1	4.2.2.1, 4.2.2.2	Three states of matter	<ul style="list-style-type: none"> • Use data to predict the states of substances. • Explain the changes of state. • Use state symbols in chemical equations. 	
2	4.2.1.2	Ionic bonding	<ul style="list-style-type: none"> • Represent an ionic bond with a diagram. • Draw dot and cross diagrams for ionic compounds. • Work out the charge on the ions of metals from the group number of the element. 	
3	4.2.1.3	Ionic compounds	<ul style="list-style-type: none"> • Identify ionic compounds from structures. • Explain the limitations of diagrams and models. • Work out the empirical formula of an ionic compound 	
4	4.2.2.3	Properties of ionic compounds	<ul style="list-style-type: none"> • Describe the properties of ionic compounds. • Relate their melting points to forces between ions. • Explain when ionic compounds can conduct electricity. 	
5		Maths skills: Visualise and represent 2D and 3D shapes	<ul style="list-style-type: none"> • Use two-dimensional (2D) diagrams and 3D models to: <ul style="list-style-type: none"> ○ represent atoms, molecules and ionic structure ○ represent giant covalent structures ○ calculate empirical formulae of ionic structures. 	
6	4.2.1.4	Covalent bonding	<ul style="list-style-type: none"> • Identify single bonds in molecules and structures. • Draw dot and cross diagrams for small molecules. • Deduce molecular formulae from models and diagrams. 	

7	4.2.2.4	Properties of small molecules	<ul style="list-style-type: none"> Identify small molecules from formulae. Explain the strength of covalent bonds. Relate the intermolecular forces to the bulk properties of a substance. 	
8	4.2.2.6	Giant covalent structures	<ul style="list-style-type: none"> Recognise giant covalent structures from diagrams. Explain the properties of giant covalent structures. Recognise the differences in different forms of carbon, diamond and graphite and Silicon Dioxide Identify why diamonds are so hard. Explain how the properties relate to the bonding in diamond. Explain why diamond differs from graphite. Describe the structure and bonding of graphite. Explain the properties of graphite. Explain the similarity to metals. 	<p>Assessment: exam questions on ionic vs covalent/ allotropes of carbon</p> <p>Marked by teacher</p>
9	4.2.3.3	Graphene's and fullerenes	<ul style="list-style-type: none"> Describe the structure of graphene. Explain the structure and uses of the fullerenes. Explain the structure of nanotubes 	
10 Triple only	4.2.4.1, 4.2.4.2	Nanoparticles, their properties and uses	<ul style="list-style-type: none"> Relate the sizes of nanoparticles to atoms and molecules Explain that there may be risks associated with nanoparticles. Evaluate the use of nanoparticles for a specific purpose. 	
11	4.2.2.5	Polymer structures	<ul style="list-style-type: none"> Recognise polymers from their unit formulae. Explain why some polymers can stretch. Explain why some plastics do not soften on heating. 	

12		Metallic bonding	<ul style="list-style-type: none"> Describe that metals form giant structures. Explain how metal ions are held together. Explain the delocalisation of electrons. 	
13 Triple only	4.10.3.2	Alloys as useful materials	<ul style="list-style-type: none"> Describe the composition of common alloys Interpret the composition of other alloys from data Evaluate the uses of other alloys 	
14		Properties of metals and alloys	<ul style="list-style-type: none"> Identify metal elements and their properties, and metal alloys. Describe the purpose of a tin-lead alloy. Explain why alloys have different properties to those of elements. 	Assessment: 20 mark multiple choice quiz on everything in unit
End of Unit test				
Where we will use these ideas again	<ul style="list-style-type: none"> C4 Chemical changes: electrolysis C5 Chemical energy: bond energy calculations C6 rates of reaction C7 Hydrocarbons: fraction distillation, properties of hydrocarbons 			