ATAR Chemistry UNITS 1 & 2 2021 Sem1 Exam Summary part 3

Unit Content	Pearson	study	review
Area of study 3: Introducing organic chemistry			
• the properties of covalent network substances, including high melting point, hardness and electrical conductivity, are explained by modelling covalent networks as three-dimensional structures that comprise covalently bonded atoms	**7.1**		
• elemental carbon exists as a range of allotropes, including graphite, diamond and fullerenes, with significantly different structures and physical properties	**7.2**		
• (carbon-based) nanomaterials are substances that contain particles in the size range 1–100 nm and have specific properties relating to the size of these particles which may differ from those of the bulk material	**7.2**		
○ Matter at the nanoscale can be manipulated to create new materials, composites and devices; the different characteristics of nanomaterials can be used to provide commercially available products. As products are designed on the basis of properties which are different from the bulk material, their use can be associated with potential risks to health, safety and the environment and this has led to regulations being developed to address new and existing nanoform materials.	**7.2**		
Area of Study 4: Chemical reactions and energy			
• fossil fuels (including coal, oil, petroleum and natural gas) and biofuels (including biogas, biodiesel and bioethanol) can be compared in terms of their energy output, suitability for purpose, and the nature of products of combustion	**11.1 – 11.3**		
• There are differences in the energy output and carbon emissions of fossil fuels (including coal, oil, petroleum and natural gas) and biofuels (including biogas, biodiesel and bioethanol). These differences, together with social, economic, cultural and political values, determine how widely these fuels are used.	**11.1 – 11.3**		
• chemical reactions can be represented by chemical equations; balanced chemical equations indicate the relative numbers of particles (atoms, molecules or ions) that are involved in the reaction	**11.2 (page 233-236)**		
• the mole concept relates mass, moles and molar mass and, with the Law of Conservation of Mass; can be used to calculate the masses of reactants and products in a chemical reaction	**11.3 (page 245-247)**		