

EMMANUEL COLLEGE

THE SCIENCE DEPARTMENT

Year 7



Year 7	Autumn Term	Spring Term
Unit Title	Matter 1	Matter 2
Key Question(s)?	What are the physical properties of solids, liquids and gases?	What are the properties of elements and compounds? How does the periodic table show how the patterns of elements?
Threshold Concepts	<p>Properties of solids, liquids and gases can be described in terms of particles in motion but with differences in the arrangement and movement of these same particles.</p> <p>The method chosen to separate a mixture depends on which physical properties of the individual substances are different.</p>	<p>All matter is made up of atoms. Each element is made up of a different type of atom. A single atom does not have the properties of that element.</p> <p>A compound is made up of two or more types of atom joined together. As different atoms are joined than in the separate elements, the compound has properties that are distinct from the elements that are made up of its constituent atoms.</p> <p>The periodic table shows how elements behave and patterns in reactivity.</p>
Link to Prior Learning	Students have covered the properties of solids, liquids and gases and various separating techniques in the KS2 curriculum, but this is limited to general properties rather than looking at how the particles are arranged.	Students are introduced to the idea that matter is made of particles in the first topic in Year 7, now they look at the types of substances that exist – elements, compounds and mixtures.
Knowledge and Sequencing Rationale	<p>We begin with core concepts in the three subject areas of science. We look at the nature of matter in Chemistry, multicellular organisms in Biology and electricity and energy transfer in Physics. These are essential concepts that build on ideas from primary school science. We alternate between the three subject areas of science to demonstrate to students the broad areas of study required in secondary science. We spend six weeks on each topic area so as not to hit cognitive overload with younger students. At the end of each six-week topic, a week of study is dedicated to revision, recap and formative feedback.</p> <p>The next sequence of topics (2B, 2C and 2P) build on the concepts introduced in the first sequence. 2C continues to delve deeper into the nature of matter and introduces patterns based on atomic structure, 2B takes the ideas of how multicellular organisms are structured by looking at specific systems such as the digestion and respiratory systems. 2P introduces the concepts of forces giving lots of contextual examples of forces can change the 'form' on an object. Energy features in each of the four physics topics at KS3 and ideas about energy are developed in each of them. Biological processes feature in each of the four Biology topics at KS3 and ideas about these processes are developed in each of them. The nature of matter features in each of the four chemistry topics at KS3, and ideas about how matter changes are developed in each of them.</p>	

