Year 8 Science Long Term Plan

Term	Biology Intent	Biology Content	Chemistry Intent	Chemistry Content	Physics Intent	Physics Content	Method of assessment
1 & 2	Students study photosynthesis in plants, gas exchange systems in plants and in animals.	The structure and function of the lungs and the circulatory system in humans and the similarities and differences between aerobic and anaerobic respiration. This topic builds on year 7 knowledge of cells, and organism organization and feeds forward to the organisation unit in Year 9.	Students study the pH scale, the strength of acidity and alkalinity and the names of some everyday acids and alkalis.	Strong acids and alkalis are very corrosive and students will learn how these substances are dealt with in the laboratory as well as the associated hazard symbols and the risks involved in using these substances. Students will study neutralisation reactions of both strong and weak acids, developing their skills in both word and symbol equations. These reactions will be put into the context of neutralisation reactions and their importance to the environment and health. This topic builds on the year 7 topic of particles and chemical reactions and feeds forward to the Chemical Changes unit in Year 10.	Students study a wide range of energy transfers and energy resources	This builds on the students prior knowledge on forces and energy from year 7. They explore the advantages and disadvantages of different energy resources, evaluating their suitability for production of electricity. Students then investigate the various methods of heating and cooling, finding ways to control energy transfer. Finally students look at the calculations involved with energy transfer including work done, power and the costs of domestic electricity. This feeds forward to the Energy unit in Year 9.	• Extended examination question for each discipline. • End of unit test for each discipline.
3 & 4	Students study the differences between	Seed dispersal in flowering plants,	Students study metabolic systems,	Resources and solving problems	Students study: how different types of	The motion of particles within	• Extended examination

	sexual and asexual reproduction, pollination, fertilisation.	human reproduction, the menstrual cycle and pregnancy. This unit builds on the prior knowledge of how cells multiply and also from topic 1 about how cells respire or photosynthesise and feeds forward to the Bioenergetics unit in Year 10.	explore chemical synthesis and issues including sustainability.	with waste management. They study polymers and their uses, ceramics and composite materials, as well as the use of secondary sources to investigate trends in changing fuel usage and the development of medicines. Finally, they investigate chemical reactions that take place when cooking food and their importance. This topic builds on particles from year 7 and how the reactions can be turned into useful materials and feeds forwards to the Using Resources unit in Year 11.	waves transfer energy from place to place.	water and sound waves and how waves superimpose one each other; the reflection and refraction of light and the applications of mirrors and lenses; how sound is transmitted and heard along with the applications of sound waves. This unit builds on the new knowledge on energy from term 1 and from year 7 knowledge on forces and energy. It feeds forward to the waves unit in Year 11.	question for each discipline. • End of unit test for each discipline.
5 & 6	Students study what an ecosystem is.	Food chains, food webs and pyramids of numbers, populations and how to use sampling to measure them, how humans are damaging the environment and what we can do to protect it. This unit builds on the prior knowledge of cells and how	Students study the composition and structure of the Earth,	Including the inner core, outer core, mantle and crust, the processes of the rock cycle and the characteristics of igneous, sedimentary and metamorphic rock. The focus then moves to the Earth as a source of resources, and evaluating	Students study: the place of the Earth within the Solar System and the Universe as a whole.	The properties of stars and the behaviours of the planets held in orbit around them by gravity forces; the structure of the Universe and the technology used to gather evidence about it. This unit builds on students prior knowledge of forces	• Extended examination question for each discipline. • End of unit test for each discipline.

		organisms depend on each other to survive from year 7 and feeds forward to the Ecology unit in Year 11.		humanity's impact on the environment, including how human activities have affected the carbon cycle and the composition of the atmosphere. This unit builds on students prior learning on particle arrangement and how substances can change from Year 7 and feeds forward to the Atmosphere unit in Year 11.		and energy from Year 7 and feeds forward to the Space unit in Year 11.	