Fareham Academy – Science – Year 9

Fareham Academy | Unlocking Potential Creating Opportunity

	Autumn 1	Autumn 2	Spring 1 Spring 2		Summer 1	Summer 2
Topic(s)	Cells The periodic table	Atomic structure Organisation	Bonding Energy	(Over run from SPR1) Infection and response	Energy changes	Particle model of matter
Topic Objectives	Distinguish between pro/eukaryotic cells, about cell transport and cell division. Utilise the periodic table as a foundation for a significant chunk of the course.	Explain which enzyme acts on which nutrient, along with gaining in-depth knowledge on the heart and the blood. Explore the uses/dangers of radiation and types of decay.	Utilise the PT to explore a range of bonding, establish properties within each Understand the conservation of energy. Make use of equation triangles for a range of types of energy calculation.	Explore a range of diseases and treatments.	Define differences related to endo and exothermic reactions	Apply understanding of the particle model.
Acquired Knowledge/ Skills	Cells: Explore how structural differences between cells enables them to perform specific functions and that differences in cells are controlled by genes in the nucleus. Distinguish between differ types of transport. Understand that growth, cells must divide by mitosis. Explore research and application of stem cell technology. The periodic table: Utilise the PT to understand atomic structure, predict properties (chemical and physical) of elements in different groups using known trends. Understand the development of the PT in relation to scientists' contributions and discoveries. Link the development of the PT to what scientists know and understand about the current atomic model	Atomic structure: Understand the dangers of radiation Explore how today, radioactive materials are widely used in medicine, industry, agriculture and electrical power generation Organisation: Explore the digestive system and the respiratory system and link to the importance of the circulatory system. Explore the progress in surgical techniques for CHD and be critical in how humans should make appropriate lifestyle choices to prevent CHD. Explore plant's transport systems and know that these are dependent on environmental conditions to ensure that the leaf can photosynthesise.	Bonding: use theories of structure and bonding to explain the physical and chemical properties of materials. Analyse structures to understand that atoms can be arranged in a variety of ways, some of which are molecular while others are giant structures. Energy: Understand that the concept of energy emerged in the 19th century. Understand that the limits to the use of fossil fuels and global warming are critical problems for this century. Explore the ideas that Physicists and engineers are working hard on in order to identify ways to reduce our energy usage. Utilise equation triangles for various energy calculations.	Infection and response: Know that pathogens cause infectious diseases and produce toxins explore ways we can avoid spread of disease understand the role of white blood cells learn how vaccinations work	Energy changes: Understand that energy changes are an important part of chemical reactions. Link ideas to know that interaction of particles often involves transfers of energy due to the breaking and formation of bonds.	Atomic model of matter: Understand that the particle model is widely used to predict the behaviour of solids, liquids and gases Learn that the particle model can help scientists to explain a wide range of observations. End of year revision for end of year assessment.
Assessments	Cells and periodic table topic tests	Atomic structure and organisation topic tests	Bonding, energy and infection and response topic tests		Energy changes topic test	Particle model of matter topic test. End of KS test.