

What are the aims and intentions of this curriculum?

The Year 10 Curriculum Intent is developed to inspire and challenge our students at Rosedale College of all abilities and aspirations.

The content is presented in an order that tells a coherent and logical story through eukaryotic and prokaryotic cells, animal and plant cells in more detail, and microscopy, which best suits our students. There are six required practicals, and they are all linked to areas of the content where it would be most appropriate to teach them to embed skills and knowledge.

The Learning intention list clearly what our students need to know and be able to do. Further sections outline the opportunities to develop Scientific Communication Skills as well as the requirements for the skills in working scientifically, maths and practical assessment. Five of the six required practicals will be completed by our students following the Combined Science (Trilogy). The subject content is presented clearly, in a logical teaching order, with opportunities for skills development throughout the Scheme of Work. This SOW provide opportunities and preparation for progression onto Post 16.

Term	Topics	Knowledge and key terms	Skills developed	Assessment
Summer 2	Biology <ul style="list-style-type: none"> Cell Structure Cell Division Transport in cell Animal tissues, organs and organ systems Plant tissues, organs and organ systems 	Students will learn: <ul style="list-style-type: none"> About eukaryotic and prokaryotic cells, animal and plant cells in more detail, and microscopy. The structure of chromosomes, mitosis, stem cells and cell differentiation. About diffusion, osmosis and active transport. About the organizational hierarchy, the principles of organization, the human digestive system and its enzymes, the heart and vessels, blood, related health issues, the effects of lifestyle, and cancer. About the structure and organization of plant tissues, and transportation in plants 	Students are able to: <ul style="list-style-type: none"> Explain the functions of plant, animal and bacterial cells. Use of models to describe chromosomes, genes and DNA. Explain diffusion in terms of the particle model. Explain that the human digestive system has a range of tissues and organs that are adapted for digesting and absorbing food. Explain that plants make carbohydrates in their leaves by photosynthesis and gain mineral nutrients and water from the soil via their roots. 	<ul style="list-style-type: none"> Required practical: Light microscope. Required practical: Osmosis Chapter review questions End of Chapter Examination Required practical: Food test. Required practical: pH test on amylase enzyme

Autumn 1	<p>Biology</p> <ul style="list-style-type: none"> • Photosynthesis • Respiration • Infection and response <p>Chemistry</p> <ul style="list-style-type: none"> • Atomic structure and the periodic table. 	<p>Students will learn:</p> <ul style="list-style-type: none"> - The organs needed for photosynthesis. - How fermentation of yeast is used in brewing and bread-making. - About communicable diseases caused by viruses, bacteria, fungi and protists. - About the structure of atoms, reactions of elements, the periodic table and mixtures. 	<p>Students are able to:</p> <ul style="list-style-type: none"> - Explain why other organisms are dependent on photosynthesis. - Explain how specific activities involve aerobic or anaerobic respiration. - Explain human defence systems, vaccination, and the discovery and development of drugs, including antibiotics and painkillers. - Explain that compounds have different properties from the elements from which they are made. 	<ul style="list-style-type: none"> - Required practical: Rate of photosynthesis. - Chapter review questions - End of Chapter Examination - Practical works.
Autumn 2	<p>Chemistry</p> <ul style="list-style-type: none"> • Bonding, structure and the properties of matter. • Quantitative Chemistry 	<p>Students will learn:</p> <ul style="list-style-type: none"> - About ionic, molecular, giant covalent and metallic substances, as well an overview of the types of bonding and structures, nanoscience and the different forms of carbon - About relative mass and moles, conservation of mass, and reacting 	<p>Students are able to:</p> <ul style="list-style-type: none"> - Describe that different substances have different properties, such as melting points, electrical conductivity, etc. - Explain that mass is conserved in chemical reactions 	<ul style="list-style-type: none"> - Practical activities - Chapter review questions - Working scientifically - End of Chapter Examination
Spring 1	<p>Chemistry</p> <ul style="list-style-type: none"> • Chemical change • Energy changes 	<p>Students will learn:</p> <ul style="list-style-type: none"> - About reaction and extraction of metals, reactions of acids, making salts and electrolysis - About exothermic and endothermic reactions 	<p>Students are able to:</p> <ul style="list-style-type: none"> - Compares metals in terms of their reactivity. - Explain that energy cannot be made or destroyed – it can only be transferred from one form to another (the law of conservation of energy) 	<ul style="list-style-type: none"> - Required practical: Making salts - Required practical: Electrolysis - Required practical: Reaction profiles - Chapter review questions - Working scientifically - End of Chapter

Spring 2	Physics <ul style="list-style-type: none"> • Energy • Electricity 	Students will learn: <ul style="list-style-type: none"> - About energy changes in a system, the ways energy is stored before and after such changes, conservation and dissipation of energy and national and global energy resources. - That in a series circuit voltage is shared between each component, while in a parallel circuit voltage is the same across each loop. 	Students are able to: <ul style="list-style-type: none"> - Explain energy stores and energy transfers. - Explain how voltage and resistance affect the way components work, referring to energy. 	<ul style="list-style-type: none"> - Practical work - Required practical: Specific heat capacity of a material - Required practical: Resistance of a wire - Required practical: Voltage/Current characteristic - Smart test
Summer 1	Physics <ul style="list-style-type: none"> • Particle model of matter • Atomic Structure 	Students will learn: <ul style="list-style-type: none"> - About the structure of atoms, reactions of elements, the periodic table and mixtures. - Describe the activities of atoms and isotopes as well as atoms and nuclear radiation 	Students are able to: <ul style="list-style-type: none"> - Explain that compounds have different properties from the elements from which they are made. - Explain that an atom is neutral in charge, because the positive charge on the nucleus is balanced by the negative charge of the electrons. 	<ul style="list-style-type: none"> - Practical activities - Working scientifically - Chapter review questions - End of Chapter