Class of 2026/27 Curriculum Map

Science

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Post 16 Study	Post 16 study: Students can go onto study A level Biology, Chemistry or Physics will need to continue to develop their scientific thinking skills, expand and apply their experimental skills, become more critical with their evaluations and finally continue to develop their vocabulary and associated nomenclature. Some may continue their journey via a colleges offering vocational qualifications. Those who do not want to commit to full-time education would be able to take on an apprenticeship combining on the job practical skills and college based theory for their application.																																						
Year 11	11.1/11.2 Factors affecting photosynthesis and plant transport		11.1/11.2 properties of waves in the electromagnetic spectrum, wave		10.1 Calculations involving masses.			11.4 Respiration and exercise.		11.3/11.3/11.5 Forces,worksdone,momentum,motion and effects.		10.6 electrolytic processes Wk 14 Assessment week December Mocks for Biology, Chemistry and Physics			11.5/11.6 Hormones, menstrual cycle and controlling fertility.		11.6/11.7/11.8 Magnetism, electromagnetism and electromagnetic		11.5/11.7 Heat energy changes and reversible reactions. Wk 20 Assessment week		11.8 Gas exchange and circulation		11.9/11.10 Radioactive emissions, half-lives and dangers of reactivity.		11.8 Earth and atmosphere Wk 26 Assessment week(Mocks)		11.9 Ecosystems and material cycles			11.10 Human influences on ecosystems Prep for Summer Exams		Final exam prep and revision						
	How do the limiting factors change the rate of photosynthesis ?		What ways can electromagnetic radiation with frequencies higher than visible light, be used in medicine ?		How does the law of conservation of mass explain why magnesium increases in mass when it is burned ?		Prepare for cumulative assessment	Why does the amount of oxygen in the artery increase as exercise intensity increases ?		What happens to momentum in collisions ?		How do you predict the products formed in the electrolysis of molten zinc chloride ?	Year 11 Mocks all subjects		What is homeostasis?		Why does the motor effect prove Flemings Left hand rule?		What is meant by dynamic equilibrium?		Why is the heart sometimes called a double pump ?		How can the half-life be used to work out how much of a substance decays ?	Yr 11 Pre-examination mocks	What is the link between fossil fuel combustion and climate change ?	How do farmers increase the amount of nitrates in the soil ?				How does the introduction of new species affect biodiversity ?								
	All students will be invited to attend revision sessions held after school on nominated days in preparation for their mocks and summer examinations.							End of November beginning of December Year 11 Mocks will take place over a two week period																															
Year 10	10.1/10.2 Waves and measurements of speed, refraction and reflection		10.1 Nervous system		10.2 Groups in the periodic table.			10.3/10.4 Forces, work done, energy, power and efficiency.			10.3/10.4 Mitosis, growth, stem cells and specialisation Wk 14 Assessment week				10.3 Salt preparations			10.4 Fuels Wk 20 Assessment week	10.8 Rates of reaction	10.5/10.6/10.7 Electric circuits, uses of electricity, power, domestic supply and static electricity.			10.5/10.6 Pathogens, disease, medicines and non-communicable disease.			10.9/10.10 metals, obtaining and using metals, life cycle assessments			10.8 Density and change of state Wk 32 Assessment week.			10.10 Gases		10.9 Specific latent heat/heat capacity		10.9 Genetics, inheritance, variation, evolution and genetic modification. Wk 39 assessment week		
	Can you re-arrange the wave equation to find frequency, velocity and wavelength ?		How does the nervous system allow the body to respond to stimuli ?		Why do alkali metals have different reactivities ?		Prepare for cumulative assessment	What is work done and how can it be measured and calculated ?			What are the advantages and risks of using stem cells in medicine ?		Prepare for cumulative assessment		How can a soluble salt be prepared from an acid and an insoluble base?			Why is crude oil a non-renewable, finite resource?			How can you calculate power, when you know current, potential difference and/or resistance?		How can you calculate power, when you know current, potential difference and/or	Prepare for cumulative assessment		How is the method of extraction of a metal related to its position in the reactivity series?			Can you explain why the density of a substance depends on its temperature ?			What is the difference between the kelvin and Celsius temperature scales?		What do specific heat capacity and specific latent heat mean ?		Year 10 Mocks		Can a transgenic bacteria produce
Year 9	9.1 Atomic structure		9.1 Describing atoms		9.1/9.2 Variation, adaption, evolution and extinction			9.2/9.3 Water and separations.			9.2/9.3 Heat energy transfer, Energy and efficiency				9.3 Digestion			9.4/9.5 Bonding and the periodic table			9.4 Describing motion, forces and matter.			9.4/9.5/9.6 The nucleus, prokaryotic, eukaryotic cells and microscopy and magnification			9.6/9.7 The PH scale , further reactions of acids.			9.5 Waves and the electromagnetic spectrum			9.7/9.8 The movement of substances and enzymes.		9.9 Dietary components		9.8 Solving problems with chemistry		
	How has the model of the atom changed over the last 200 years ?		What are the relative masses and charges of the particles that make up atoms ?		Compare interspecific and intraspecific competition ?		Prepare for cumulative assessment	How can you calculate the RF value of a liquid using chromatography			What is the difference between an exothermic and endothermic reaction ?		Prepare for cumulative assessment		How is enzyme activity affected by temperature, PH and substrate concentration ?			How can the numbers of subatomic particles in an ion be calculated ?			Can you explain why the weight of a skydiver stays the same throughout the jump ?		What are the differences between prokaryotic and eukaryotic cells ?	Prepare for cumulative assessment		How do changes in the concentration of hydrogen ions affect the PH of a solution ?			How is the danger associated with an electromagnetic wave linked to its frequency ?			How is the danger associated with an electromagnetic wave linked to its frequency		How is the small intestine adapted to its function ?		EOY consolidation exercise		How is chemistry used to make and restore frescos?
Year 8	8.1 Food groups and deficiency diseases		8.1 atoms and elements		8.1 Solids, liquids and gases			8.2 Ventilation	8.3 Drugs		8.2 Physical and chemical changes Wk 17 Assessment week				8.2/ 8.3 Light and sound			8.4/8.5 Respiration, unicellular organisms and diffusion			8.3 Reactions of acids			8.5/8.6 Metals and alloys, Reaction of metals. Wk 26 Assessment week			8.4/8.5/8.6 Static electricity, Earth and space, Magnets and Electromagnets			8.8 Human Impact			8.6 Photosynthesis		8.7 Plant reproduction		8.4 combustion		
	Which food groups are there and how can I test for these?		How does atomic theory explain what happens during a chemical reaction?		How are the particles arranged in a solid, liquid and gas?		Prepare for cumulative assessment	How are gases exchanged in the lungs? How would using epo give an athlete an advantage?			Can physical and chemical changes take place together?				Why does light change direction at the interface of two different substances?			Where does respiration take place and what organelles are involved in the process	Prepare for cumulative assessment		Can the force of gravity be felt in space?			Will all metals react with acids to form hydrogen ?			Can the force of gravity be felt in space?			How do humans impact food chains/webs within a habitat ?		Prepare for cumulative assessment	What are the products of photosynthesis ?		How does fertilisation lead to the formation of a seed ?		How do you stop a combustion reaction?		
	Intent- students to look at how to test for nutrition content, link to the atomic structure of the molecules within food. Implementation- students will use specific food tests for carbohydrates, sugars and fats. Link to the atomic structure. If the opportunity of calorimetry arises they will have opportunity to test particle theory of solids, liquids and gases. Impact- students will be able to discuss food groups at molecular level, how to test for nutrients and discuss when some food stuffs change state							Intent- students in this block will be able to tell the difference between breathing and respiration, students will explore the effect of drug misuse. The chemistry module will differences between physical/chemical reactions. Implementation-using theory and practicals to explore ideas of breathing vs respiration and how explore how chemical changes produce new substances Impact- students to confidently discuss the breathing apparatus, state that some drugs are not always helpful							Intent- students in this block will learn about how waves travel, light and sound. Followed by developing an understanding of how respiration takes place. Implementation- students will carry out practicals to test the wave theories, and respiration, diffusion practicals Impact- students to link wave theory to light and sound. Followed by being able to discuss the process of respiration.							Intent- This block focusses on how different acids react, followed by how metals atoms are arranged in pure metals and alloys. Implementation-students will carry out practicals to test the reactivity of acids and how metals are arranged in pure/alloy states. Impact- students will be able to identify how different acids react. Followed by an understanding how metals, we use every day, are arranged in terms of their arrangements.							Intent- This block will focus on the relationship between static electricity, magnetism and it uses, followed by the impact human have on food chains/webs and the impact on the habitat around us. Implementation- students will conduct practicals building an understanding of the link between magnetic fields in space and how we use them in our daily lives. The students will explore food chains and the anthropogenic impact. Impact- students to make valid links between static electricity, magnets and Earth/Space. Followed by an understanding of human interactions with the environment around us is impacted, including how we mitigate these impacts.							Intent- students will explore the products of photosynthesis and how this enables plant reproduction. They will extend this to have a better understanding of how plants reproduce. Followed by combustion, what is combustion and what are the factors that allow combustion to take place. Implementation- Carry out practicals to identify the products of photosynthesis, dissect a flower to better understand plant reproduction. Followed by having a better knowledge of how combustion occurs, learn what the limiting factors are. Impact- student will be able to state the equation for photosynthesis, identify flowers as sex organs. Followed by using practicals to demonstrate the products of combustion.						
Year 7	7.4B Energy stores and transfers 7.1B measuring density		7.1C/7.2C/7.3C solids, liquids and gases, solutions and mixtures.					7.1B/72.B Introduction to microscopy and cells and unicellular organisms			7.3B/ 7.4B Reproductive systems, gestation and birth		7.4C Acids and alkalis/ 7.5C Neutralisation				7.2P Different forces/7.2P Floating and	Cumulative assessment for 7.3/7.4 &	7.2P Different forces/7.2P Floating and stretching		7.5B Movement		7.3P Pressure		Science Week	7.1P Measuring density		7.6B Ecosystems		Cumulative assessment for 7.1P/7.3P/7.	7.7B Biodiversity and human influence		7.6B Earth's atmosphere		7.4P Current and electricity		7.2C/7.3C mixtures and solutions		
	How can different stores of energy be transferred with minimum waste?		What are the differences between the properties of a solid, liquid and a gas?				Prepare for cumulative assessement	How is the structure of a plant cell related to its ability to facilitate photosynthesis?			Why do gamete cells have less chromosomes than body cells?		Prepare to use equipment accurately	What happens when an acid is added to an alkali? How can we make use of neutralisation in daily life?			If an unbalanced force is applied to a stationary object, what will happen ?	Prep for assessment	If an unbalanced force is applied to a stationary object, what will happen ?		How can we link cells, tissues, organs and our skeleton?		How is pressure used in sports?		Students to explore the 3 disciplines and apply to the wider world	How does mass and volume relate to density?		How do organisms affect their habitats and communities?		Prep for assessment	How do humans cause an effect on the biodiversity of an ecosystem?		What kind of particles are found in air ?		How can we change the current in a circuit?		How can we work out if something is soluble?		
	Intent- students to successfully be able to link how they can find energy in cells, particles and energy around us. Implementation- Students will be able to make a microscope slide, be able to understand the concepts of particle theory and apply to energy applications. Impact- Students will have an introduction into core principles of each discipline as they begin their journey with us.							Intent- students in this block will be able to tell the difference between breathing and respiration, students will explore the effect of drug misuse. The chemistry module will differences between physical/chemical reactions. Implementation-using theory a			Intent- understand human reproductive system Implementation-students will learn about the organs and their roles in reproduction Impact-Awareness of how babies are conceived		Ill- confidence in handling scientific equipment Impact- students will have an awareness of uses/dangers of substances around them and be able to classify them	Intent- students to learn about every day substances Implementation- students will test substances, make their own indicators			Intent- students make links between push/pull/twist Implementation- practicals to test forces and springs Impact- students able to discuss Hooke's law	Students to demonstrate an understanding of reproduction, what acids/alkalis are and how there are forces around us all	Intent- students make links between push/pull/twist Implementation- practicals to test forces and springs Impact-students able to discuss Hooke's law		are formed. Implementation- students will connect theory of muscles to Impact- students can show how muscles and joints are linked		Intent- students to learn about what pressure is and how to measure it Implementation- use equations to support practicals Impact- students to apply the principle of pressure to the wider world		Ill Students to explore and link concepts that they are learning to improving scientific thinking and build science skills while developing confidence in methodology and analysis of data	Intent- students to apply links between mass and volume. Implementation- students to think about size and mass Impact- students should learn that a largo object is not always the one with the greatest density		Intent- students develop an understanding of how organisms in an ecosystem are affected by their environment Implementation- students to study pyramids of numbers, predator-prey relationships and impact of bioaccumulation in the environment Impact- students to make a link with the natural world and links that bind them together		Students to demonstrate an understanding of the physics and biology topics taught	Intent- students to look at interdependence or organisms and how they are affected by their environment Implementation- students to do field work (quadrats, pitfall trap, sweep nets) Impact- students have a better view of the impact humans have on biodiversity		impact in our atmosphere Impact- students to identify gases in the atmosphere, their reactivity and their composition at molecular level impact in our atmosphere		Intent- students to learn how to set up a series and parallel circuits Implementation- Students to physically set up circuits and investigate the effect of current and voltage across both types of circuit Impact- students understand how to set up a circuit and learn how current flows in terms of electrons		Intent- Students to learn how some substances are soluble (in water)and that some are insoluble Implementation- students will identify substances that soluble/insoluble and how we can measure the solubility of some substances Impact- students will have an understanding of mixtures with some practical skills to be able to repeat and demonstrate understanding		
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Pre-secondary	At KS1 and KS2 the expectation is that some students will arrive at Cornelius Vermuyden having some understanding of basic scientific concepts. Whereby, they have some experience of carrying out simple practicals allowing them to demonstrate scientific enquiry and evaluate the work done. However some, due to the possible lack of a Science specialist within a primary school, will have little or no experience of scientific knowledge or procedure.																																						

National Curriculum and Assessment Objectives
At GCSE the following AO are applied to the curriculum:
AO1 Demonstrate knowledge and understanding of scientific ideas, scientific techniques and procedure.
AO2 Apply knowledge and understanding of scientific ideas, scientific enquiry, techniques and procedure.
AO3 Analyse information and ideas to interpret, evaluate, make judgements and draw conclusions, and develop and improve experimental procedure.

Curriculum Principles

Balanced – Promotes intellectual, moral, spiritual, creative, emotional, and physical development as equally important.
Rigorous – Seeks to develop intra-disciplinary habits of mind; the subject matter is taught in a way that is faithful to its discipline.

Coherent – Makes explicit connections and links between the different subjects/experiences encountered.
Progression Model – Focuses on progression by carefully sequencing knowledge; provides clarity about what getting better at a subject means (knowing and remember more)
Appropriate – Looks to avoid making unreasonable demands by matching level of challenge to a student's current level of maturity/knowledge.

Focused – Seeks to keep the curriculum manageable by teaching the most important knowledge, identifies the big ideas or key concepts within a subject.
Relevant – Seeks to connect the valued outcomes of the curriculum to the students being taught it; provides opportunities for students to make informed choices.