

Activate 2 (Year 8)		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 8	Topic	Biology - Health and Lifestyle (B1) Chemistry - The Periodic Table (C1)	Biology - Ecosystem Processes (B2) Physics - Energy (P2)	Chemistry – Chemical Reactions (C2) Physics - Electricity and Magnetism (P1)	Physics - Pressure (P3) Science Week Project	Biology: Adaptation and Inheritance (B3) Chemistry - Metals and Acids (C3)	Biology- Immune Response (B4) Chemistry - The Earth (C4)
	Big questions	B1 -How does your body exchange gases with the environment? - How can drugs affect your body? -How does your body break down the food you eat? C1 -What are atoms and elements? -What are the patterns in properties of elements? -How can we use the periodic table to predict element properties?	B2 -How does the body transfer energy from food by respiration? -What is the difference between aerobic and anaerobic respiration? -How do plants produce food by photosynthesis? P2 -How are you transferring energy as you read this? -What happens in terms of energy when you are watching tele or charging you phone? -How can you reduce your energy bills?	C2 - What happens in chemical reactions? -How does mass change in chemical reactions? -why do chemical reactions transfer energy? P1 - What happens in an electric circuit? -what happens in a power station?	P3 - Understanding of how all interactions in the Universe are reliant on forces being exchanged between two or more bodies, and that these force interactions are inextricable from the corresponding energy and momentum conservation within systems. The ability to use a range of mathematical tools to calculate, manipulate, predict and represent physical systems and processes.	B3 - Why do we all not look the same? -How do you inherit characteristics from your parents? -What is the likelihood of you inheriting a characteristic? C3 -What are chemical reactions? -What are the patterns in reactions of metals? -What are the patterns in reactions of acids?	B4 -What are communicable diseases and how do you prevent them? -How can lifestyle increase or decrease risk of disease? - How does vaccination protect you against disease? C4 -What Causes climate change? -How do we obtain the materials we need? How can we conserve earth's resources?
	Domains of knowledge	-Health and Disease -Chemical Changes	- Understanding how organisms interact with each other and the environment. - Energy	-Chemical reactions and enthalpy - Electricity and magnetism	-Forces and motion -Energy	-Inheritance -Interdependence -Evolution -Chemical Changes	-Pathogens, Immunity, vaccination, - Earth, Atmosphere and Resources -Human Impact
	Concepts	B1 1. Nutrients Food tests 2. Unhealthy diet 3. Digestive system 4. Bacteria and enzymes in digestion 5. Smoking 6. Drugs 7. Alcohol 8. Breathing C1 1. Atoms, elements, compounds recap 2. Atomic and electronic structure 3. Metals and non-metals	B2 1. Aerobic respiration 2. Anaerobic respiration 3. Biotechnology: fermentation 4. Photosynthesis 5. Leaves 6. Plant Nutrition 7. Food and fuel + BMI P1 1. Work energy and machines 2. Non-renewable energy 3. Renewable energy 4. Energy and power 5. Energy adds up 6. Energy Dissipation 7. Energy stores + Transfer	C2 1. Atoms in chemical reactions 2. Combustion 3. Thermal decomposition 4. Conversation of Mass 5. Exothermic reactions 6. Endothermic reactions 7. Energy level diagrams 8. Solutions and concentrations P1 1. Charging Up 2. Introduction to circuits 3. Conductors and insulators 4. Series and parallel circuits 5. Potential difference	P3 1. Pressure in gases 2. Pressure in liquids 3. Pressure on solids	B3 1. Competition and adaptation 2. Variation 3. Natural selection 4. Inheritance 5. Punnet Square 6. Extinction 7. DNA 8. Genetics 9. Genetic Modification 10. Charles Darwin C3 1. Metals and non-metals recap 2. Reactions of metals and oxygen 3. Reactions and metals and water 4. Collision theory & rate of reaction 5. Gas test 4. Metal displacement reactions 5. Extracting Metals from ore 6. Polymers	B4 1. Health and Disease 2. Communicable Disease 3. Transmission of Disease 4. Pathogens 5. Human Defence Response 6. Vaccines 7. Herd Immunity 8. Non- Communicable Disease C4 1. History of the earth's atmosphere 2. Greenhouse gases 3. Carbon cycle 4. Global Warming 5. Recycling 6. New Fuels 7. Cleaning up exhaust

		4. Groups and periods 5. Elements of group 1 6. Elements of group 7 7. Elements of group 0 9. Writing chemical formula 10. Atoms in chemical reactions 11. Polymers	8. Energy and Temperature 9. Energy Transfer: Particles 10. Energy Transfer: radiation	6. Resistance 7. Magnets and magnetic fields 8. Using Electromagnets		7.Composites	8. Recycling
	Skills	-To test foods for: non-reducing sugars, proteins and fats. Measure the amount of energy stored in food. -Conduct practical chemistry safely and accurately	- Measure the amount of energy stored in food.	- Conduct practical chemistry safely and accurately - Preparation of electrical circuits which allow for appliances to function.	- Conduct practical physics safely and accurately	- Have a good grasp of literacy skills in order to communicate scientific ideas effectively. - Conduct practical chemistry safely and accurately	- Conduct practical chemistry safely and accurately
	Impact/Assessment	End of Unit assessment to assess impact	End of Unit assessment to assess impact	End of Unit assessment to assess impact	End of Unit assessment to assess impact	End of Unit assessment to assess impact	End of Unit assessment to assess impact
	Tier 3 Vocabulary (literacy in science)	<i>Balanced diet, Deficiency, Villi, Enzymes, Withdrawal symptoms, Proteins, Carbohydrates, Vitamins, Lipids, Fibre</i> <i>Metals, Non-metals, Periodic table, Groups, Periods, Reactive, Displacement, Unreactive, Density</i>	<i>Producers, Consumers, Photosynthesis, Stomata, Bioaccumulation, Fertilisers, Aerobic respiration, Anaerobic respiration</i> <i>Kinetic, Electricity, Gravitational, potential, chemical, thermal, nuclear, efficiency, Power, Light</i>	<i>Current, Voltage, ammeter, voltmeter, cell, electron, charge, Series circuit, Parallel circuits, Components</i> <i>Chemical reaction, reactants, products, conservation of mass, exothermic, endothermic, combustion, oxidation, thermal decomposition, acid, alkali, neutralisation, salt, indicator, and pH scale</i>	<i>Pressure, Gradient, Acceleration, Stationary, Bombardment, Collision.</i>	<i>Continuous variation, Discontinuous variation, Inherited, Environmental, Chromosomes, Genes, DNA</i>	<i>Pathogen, bacteria, virus, fungi, microorganism, infection, white blood cell, phagocyte, lymphocyte, antigen, antibody, immune response, vaccination, immunity, vaccine, memory cells, antitoxin, incubation period, contagious, herd immunity. Atmosphere, Climate change, Recycling</i>
	Supporting learning at home	Century, Kerboodle, satchel and Knowledge Organisers	Century, Kerboodle, satchel and Knowledge Organisers	Century, Kerboodle, satchel and Knowledge Organisers	Century, Kerboodle, satchel and Knowledge Organisers	Century, Kerboodle, satchel and Knowledge Organisers	Century, Kerboodle, satchel and Knowledge Organisers
	Wider learning and British Values (addressing inequalities)	<i>BBC Bitesize Revision and STEM</i>	<i>BBC Bitesize Revision and STEM</i>	<i>BBC Bitesize Revision and STEM</i>	<i>BBC Bitesize Revision and STEM</i>	<i>BBC Bitesize Revision and STEM</i>	<i>BBC Bitesize Revision and STEM</i>
	Careers	<i>Dietician, Clinical Nurse, Dental Nurse, Care Worker</i> <i>Laboratory analyst, Polymer chemist, Analytical chemist, Chemistry teacher, Hazardous waste chemist</i>	<i>Ecologist, environmental scientist, conservationist, wildlife biologist, marine biologist, forestry technician, park ranger, environmental consultant, zoologist, and soil scientist.</i> <i>Engineer (Mechanical, Electrical, Renewable Energy), Renewable Energy Technician, Environmental</i>	<i>Electrician, Electrical engineer, Medical physicist, Environmental scientist, Geoscientist</i> <i>chemist, pharmacist, chemical engineer, forensic scientist, environmental scientist, lab technician, quality control analyst,</i>	<i>Driving instructor, Materials specialist, Mechanic, Meteorologist, Vehicle controls system engineer, Production engineer</i>	<i>Geneticist, Biomedical scientist, Doctor, Nurse, Clinical laboratory geneticist, Audiologist</i> <i>Meteorologists, Geologist, Environmental engineer, BP/Esso engineer, Chemical engineer, Chemistry teacher, Metallurgist,</i>	<i>Immunologist, Microbiologist, Biomedical Scientist, Doctor (e.g. GP, Infectious Disease Specialist), Nurse, Virologist, Vaccine Researcher, Epidemiologist, Public Health Officer, Pharmacologist, Laboratory Technician, Biotechnologist, Science Teacher, Clinical Researcher, Health and Safety Officer,</i>

			Scientist, Energy Consultant, Science Teacher, Electrician, Nuclear Technician, Research Scientist (Energy Sector)	food scientist, and materials scientist.			Medical Writer, Paramedic, Forensic Scientist, Geneticist Meteorologists, Geologist, Environmental engineer, BP/Esso engineer, Chemical engineer, Chemistry teacher, Metallurgist, Concrete finisher
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