

Archbishop Beck Catholic College Long Term Plan for Science

Year 7

Autumn Half Term 1	Half Term 2	Key Vocabulary/Reading Opportunities			
<p>Topic Areas to be covered:</p> <p>Working in the lab</p> <p>Particle model</p> <p>Cells</p>	<p>Topic Areas to be covered:</p> <p>Elements</p> <p>Human reproduction</p> <p>Non-contact forces</p>	<p><u>Working in the lab</u></p> <p>Apparatus</p> <p>Balance</p> <p>Units</p> <p>Trend</p> <p>Mean</p> <p>Reliable</p> <p>Method</p> <p>Record</p> <p>Plot</p> <p>Precise</p> <p>Variable</p> <p><u>Particle model</u></p> <p>Particle</p> <p>Particle Model</p> <p>Diffusion</p> <p>Gas Pressure</p> <p>Density</p> <p>Evaporate</p> <p>Boil</p> <p>Condense</p> <p>Melt</p> <p>Freeze</p> <p>Sublime</p>	<p><u>Cells</u></p> <p>Cell</p> <p>Unicellular</p> <p>Multicellular</p> <p>Tissue</p> <p>Organ</p> <p>Diffusion</p> <p>Structural</p> <p>Adaptations</p> <p>Cell membrane</p> <p>Nucleus</p> <p>Vacuole</p> <p>Mitochondria</p> <p>Cell wall Chloroplast</p> <p>Cytoplasm</p> <p>Body system</p> <p>Immune</p> <p>Reproductive</p> <p>Digestive</p> <p>Circulatory</p> <p>Respiratory</p> <p>Muscular skeletal</p>	<p><u>Elements</u></p> <p>Elements</p> <p>Atom</p> <p>Molecules</p> <p>Compound</p> <p>Chemical Formula</p> <p>Polymer</p> <p><u>Human reproduction</u></p> <p>Gamete</p> <p>Fertilisation</p> <p>Ovary</p> <p>Testicle</p> <p>Oviduct</p> <p>Uterus</p> <p>Ovulation</p> <p>Menstruation</p> <p>Reproductive system</p> <p>Penis</p> <p>Vagina</p> <p>Foetus</p> <p>Gestation</p> <p>Placenta</p> <p>Amniotic fluid</p> <p>Umbilical cord</p>	<p><u>Non-contact forces</u></p> <p>Mass</p> <p>Weight</p> <p>Newton</p> <p>Newton meter</p> <p>Non-contact force</p> <p>Gravitational field strength</p> <p>Field</p> <p>Magnetic force</p> <p>Permanent magnet</p> <p>Magnetic fields</p> <p>Negatively charged</p> <p>Positively charged</p> <p>Electrons</p> <p>Electrostatic force</p> <p>Attract</p> <p>Repel</p>

		Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.		
Spring Half Term 3	Half Term 4	Key Vocabulary/Reading Opportunities		
Topic Areas to be covered: Variation Acids & alkalis	Topic Areas to be covered: Light Metals & non-metals	<u>Variation</u> Species Variation Continuous Discontinuous Inherited Environmental <u>Acids & alkalis</u> pH scale Indicator Base Concentration Neutralisation Salt Neutral	<u>Light</u> Incident Reflected Normal Angle of reflection Angle of incidence Refraction Absorption Scattering Transparent Translucent Opaque Vacuum Convex lens Concave lens Retina	<u>Metals & non-metals</u> Metals Non metals Displacement Oxidation Reactivity Malleable Ductile Brittle Conductor Insulator Physical property Chemical property
		Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.		

Summer Half Term 5	Half Term 6	Key Vocabulary/Reading Opportunities			
Topic Areas to be covered: Energy transfers Universe	Topic Areas to be covered: Sound Interdependence	<u>Energy transfers</u> Energy store Thermal Chemical Kinetic Gravitational potential Elastic potential Dissipated Conserved Efficiency	<u>Universe</u> Galaxy Light year Stars Orbit Exoplanet Solar system	<u>Sound</u> Vibration Longitudinal wave Volume Pitch Amplitude Wavelength Frequency Vacuum Oscilloscope Absorption Auditory range Echo	<u>Interdependence</u> Food web Food chain Ecosystem Environment Population Producer Consumer Decomposer Pollinators Predator Prey
Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.					

Year 7

Cultural Capital Experiences throughout the Academic Year	Learning Characteristics instilled in the curriculum	Career Opportunities
Please stipulate term and approx. date. Chemistry for All LJMU visit to school - Autumn half term 1.	Confidence - Presentation on Forensic Day findings. Encourage students to read aloud in class. Introduction to Science topic will	Please stipulate term and approx. date. Forensic Science Day - Spring half term 4.

<p>Liverpool World Museum - Summer half term 6.</p>	<p>build confidence with equipment they have not met before. Use of key vocabulary. Group project on the universe.</p> <p>Positive - Use of praise and rewards. Engaging lessons. Competitions and trips and visitors. Positive feedback and encouragement to participate. Scientist of the Half Term. Certificates in assembly for skills. Use of positive comments/texts home.</p> <p>Respectful - Meet and greet at door. Respecting peers in group work. Use equipment appropriately. Build respectful relationships in the classroom.</p>	<p>Institute of Physics visitor Graham Perrin - Summer half term 5.</p>
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Metacognition Methods applied in Teaching

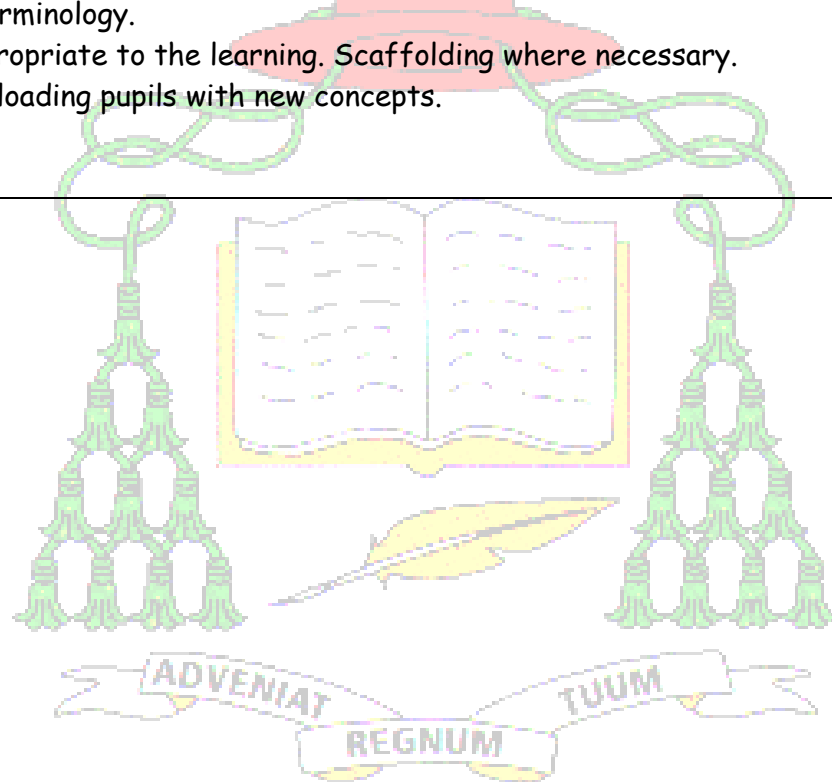
Consolidation at the start of every lesson - departmental format of 4 questions for all plus an extension question.

Regular questioning in class and for homework to support recall.

Modelling how to draw ray diagrams and use a protractor to measure acute angles, how to draw food webs, magnetic field lines, using scales, how to draw graphs, use of oscilloscope to show waves, writing word equations. Modelling of how to set up and use a microscope, use of unfamiliar apparatus.

Opportunities for self-reflection on work (green pen.)

Use of learning styles to develop concepts and communicate effectively.
Use of mnemonic devices to support learning of equations/ key concepts.
Use of word roots to access new terminology.
Ensure the level of challenge is appropriate to the learning. Scaffolding where necessary.
Chunking of information, avoid overloading pupils with new concepts.



Archbishop Beck Catholic College Long Term Plan for **Science**

Year 8 (recovery)

Autumn Half Term 1	Half Term 2	Key Vocabulary/Reading Opportunities			
<p>Topic Areas to be covered:</p> <p>Digestion</p> <p>Earth structure</p> <p>Wave properties</p>	<p>Topic Areas to be covered:</p> <p>Breathing</p> <p>Heating & cooling</p> <p>Acids & alkalis</p>	<p><u>Digestion</u></p> <p>Enzymes</p> <p>Fibre</p> <p>Carbohydrates</p> <p>Lipids</p> <p>Protein</p> <p>Stomach</p> <p>Small intestine</p> <p>Large intestine</p> <p>Gut bacteria</p> <p>Salivary glands</p> <p>Liver</p> <p>Bile</p> <p>Amylase</p> <p>Protease</p> <p>Lipase</p> <p>Hydrochloric acid</p> <p><u>Earth structure</u></p> <p>Rock cycle</p> <p>Weathering</p> <p>Erosion</p> <p>Minerals</p>	<p>Sedimentary</p> <p>Igneous</p> <p>Metamorphic</p> <p>Strata</p> <p>Compaction</p> <p>Cementation</p> <p>Fossils</p> <p><u>Wave properties</u></p> <p>Waves</p> <p>Vibration</p> <p>Transverse</p> <p>Longitudinal</p> <p>Transmission</p> <p>Reflection</p> <p>Absorption</p> <p>Superposition</p> <p><u>Breathing</u></p> <p>Breathing</p> <p>Trachea</p> <p>Bronchi</p> <p>Bronchioles</p>	<p>Alveoli</p> <p>Ribs</p> <p>Diaphragm</p> <p>Lung volume</p> <p>Contract</p> <p>Volume</p> <p>Pressure</p> <p>Asthma</p> <p>Emphysema</p> <p>Drug</p> <p>Alcohol</p> <p>Nicotine</p> <p>Tar</p> <p>Carbon monoxide</p> <p>Depressant</p> <p>Stimulant</p> <p>Addiction</p> <p>Withdrawal</p> <p><u>Heating & cooling</u></p> <p>Thermal conductor</p> <p>Thermal insulator</p> <p>Temperature</p>	<p>Thermal energy</p> <p>Conduction</p> <p>Convection</p> <p>Radiation</p> <p>Particles</p> <p>Vacuum</p> <p><u>Acids & alkalis</u></p> <p>pH scale</p> <p>Indicator</p> <p>Base</p> <p>Concentration</p> <p>Neutralisation</p> <p>Salt</p> <p>Neutral</p>

		Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.			
Spring Half Term 3	Half Term 4	Key Vocabulary/Reading Opportunities			
Topic Areas to be covered: Plant reproduction Non-contact forces	Topic Areas to be covered: Movement Types of reaction Current	<u>Plant reproduction</u> Pollen Ovules Pollination Fertilisation Seed Fruit Carpel Dispersal Competition	<u>Non-contact forces</u> Mass Weight Newton Newton meter Non-contact force Gravitational field strength Field Magnetic force Permanent magnet Magnetic fields Negatively charged Positively charged Electrons Electrostatic force Attract Repel	<u>Movement</u> Joints Bone marrow Ligaments Tendons Cartilage Antagonistic Contract Relax Skeleton <u>Types of reaction</u> Fuel Chemical reaction Physical change Reactants Products Conserved Combustion Thermal decomposition Conservation (of mass)	<u>Current</u> Current Charge Series Parallel Electrons Field

		Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.			
Summer Half Term 5	Half Term 6	Key Vocabulary/Reading Opportunities			
Topic Areas to be covered: <u>Inheritance</u> <u>Energy transfers</u>	Topic Areas to be covered: <u>Wave effects</u> <u>Energy costs</u>	<u>Inheritance</u> <u>Inherited characteristics</u> <u>DNA</u> <u>Chromosomes</u> <u>Gene</u> <u>Parents</u> <u>Offspring</u> <u>Fertilisation</u> <u>Mutation</u>	<u>Energy transfers</u> <u>Energy store</u> <u>Thermal</u> <u>Chemical</u> <u>Kinetic</u> <u>Gravitational potential</u> <u>Elastic potential</u> <u>Dissipated</u> <u>Conserved</u> <u>Efficiency</u>	<u>Wave effects</u> <u>Ultrasound</u> <u>Ultraviolet</u> <u>Microphone</u> <u>Loudspeaker</u> <u>Pressure wave</u> <u>Amplitude</u> <u>Frequency</u>	<u>Energy costs</u> <u>Power</u> <u>Energy resource</u> <u>Non-renewable</u> <u>Renewable</u> <u>Fossil fuels</u>
		Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.			

Cultural Capital Experiences throughout the Academic Year	Learning Characteristics instilled in the curriculum	Career Opportunities
<p>Please stipulate term and approx. date.</p> <p>Half term 2: Medical Mavericks to come in.</p> <p>Half term 4: Trip to Electric mountain</p> <p>Half term: visit to Myerscough or visitors in from Myerscough</p>	<p>Confidence Presentation of ideas, debates on climate change and energy transfers, practical skills embedded and reinforced. Use of key vocabulary. Encourage students to read aloud and take part in debates.</p> <p>Positive Careers opportunities, how we can apply learning to future prospects and transfer skills. Use of positive comments and texts home. Use of praise and rewards. Engaging lessons. Certificates in assembly.</p> <p>Respectful Meet and greet at door. Working in groups, respecting the group, lab and staff. Following basic respect criteria in the classroom, don't talk over each other/hands up. Debate on energy resources, encouraging respect of the planet; world day/ recycling.</p>	<p>Please stipulate term and approx. date.</p> <p>Half term 2: PT/sports visitors. Medical Mavericks links to health careers.</p> <p>Half term 3: Climate change talk/presentation</p> <p>Half term 5: Forensic science</p>

Metacognition Methods applied in Teaching

Consolidation at the start of every lesson - departmental format of 4 questions for all plus an extension question.

Regular questioning in lessons and for homework to support recall.

Modelling of practical skills/ equations. Use of example and 'top mark answers' to assess own work.

Opportunities to plan own investigations to develop planning and problem solving skills.

Flipped classroom. Pupil's research task prior to lesson allowing the lesson to develop ideas rather than provide new information.

Group work/ pupils teaching pupils, allowing presentation of ideas and positive feedback given peer/peer.

Opportunities to develop written answers using key vocabulary. Use of writing frames and level ladders to develop answers.

Real world examples and how scientific ideas are developed and used in wider fields.

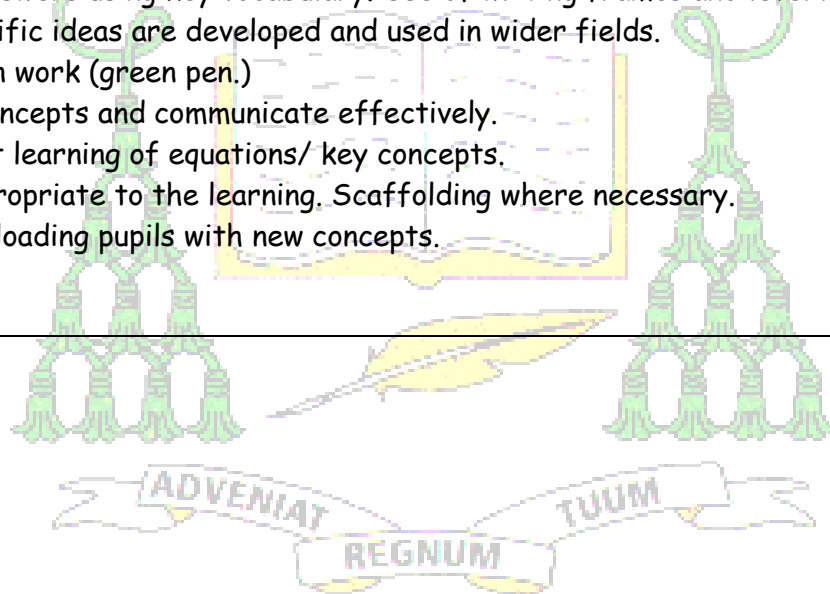
Opportunities for self-reflection on work (green pen.)

Use of learning styles to develop concepts and communicate effectively.

Use of mnemonic devices to support learning of equations/ key concepts.

Ensure the level of challenge is appropriate to the learning. Scaffolding where necessary.

Chunking of information, avoid overloading pupils with new concepts.



Archbishop Beck Catholic College Long Term Plan for Science

Year 9 - recovery

Autumn Half Term 1	Half Term 2	Key Vocabulary/Reading Opportunities			
<p>Topic Areas to be covered:</p> <p>Plant reproduction</p> <p>Inheritance</p> <p>Gravity</p>	<p>Topic Areas to be covered:</p> <p>Heating & cooling</p> <p>Pressure</p> <p>Photosynthesis</p>	<p><u>Plant reproduction</u></p> <p>Pollen</p> <p>Ovules</p> <p>Pollination</p> <p>Fertilisation</p> <p>Seed</p> <p>Fruit</p> <p>Carpel</p> <p>Dispersal</p> <p>Competition</p>	<p><u>Inheritance</u></p> <p>Inherited characteristics</p> <p>DNA</p> <p>Chromosomes</p> <p>Gene</p> <p>Parents</p> <p>Offspring</p> <p>Fertilisation</p> <p>Mutation</p>	<p><u>Gravity</u></p> <p>Weight</p> <p>Mass</p> <p>Non-contact force</p> <p>Gravitational field strength</p> <p>Field</p>	<p><u>Heating & cooling</u></p> <p>Thermal energy</p> <p>Conduction</p> <p>Convection</p> <p>Radiation</p> <p>Particles</p> <p>Vacuum</p> <p><u>Photosynthesis</u></p> <p>Photosynthesis</p> <p>Chlorophyll</p> <p>Stomata</p> <p>Starch</p> <p>Iodine</p> <p>Growth</p> <p>Fertilisers</p>
		<p>Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.</p>			
Spring Half Term 3	Half Term 4	Key Vocabulary/Reading Opportunities			

<p>Topic Areas to be covered:</p> <p>Work</p> <p>Chemical energy</p> <p>Respiration</p>	<p>Topic Areas to be covered:</p> <p>Climate & Earth's resources</p> <p>Current</p> <p>Voltage & resistance</p>	<p><u>Work</u></p> <p>Work</p> <p>Energy transfer</p> <p>Lever</p> <p>Input force</p> <p>Output force</p> <p>Turning force</p> <p>Moment</p> <p>Pivot</p> <p>Displacement</p> <p>Deformation</p> <p><u>Chemical energy</u></p> <p>Exothermic</p> <p>Endothermic</p> <p>Temperature change</p> <p>Energy level diagram</p> <p>Chemical bond</p> <p>Catalyst</p>	<p><u>Respiration</u></p> <p>Aerobic respiration</p> <p>Anaerobic respiration</p> <p>Fermentation</p> <p>Lactic acid</p> <p>Mitochondria</p> <p>Fatigue</p> <p><u>Climate & Earth's resources</u></p> <p>Global warming</p> <p>Fossil fuels</p> <p>Carbon sink</p> <p>Carbon cycle</p> <p>Greenhouse effect</p> <p>Re-radiated</p> <p>Atmosphere</p> <p>Emissions</p>	<p>Natural resources</p> <p>Mineral</p> <p>Ore</p> <p>Extraction</p> <p>Recycling</p> <p>Electrolysis</p> <p>Reactive</p> <p><u>Current</u></p> <p>Current</p> <p>Charge</p> <p>Series</p> <p>Parallel</p> <p>Electrons</p> <p>Field</p>	<p><u>Voltage & resistance</u></p> <p>Potential difference</p> <p>Resistance</p> <p>Electrical conductor</p> <p>Electrical insulator</p>
<p>Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.</p>					

Summer Half Term 5	Half Term 6	Key Vocabulary/Reading Opportunities			
Topic Areas to be covered: Electromagnets Evolution	Topic Areas to be covered: Following assessment this half term will be a focus on consolidation and extension of key topics.	Electromagnets Electromagnet Solenoid Core Current Magnetic field Wire coil	Evolution Population Species Natural selection Extinct Biodiversity Competition Resources Evolution Survive		
Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.					

Year 9

Cultural Capital Experiences throughout the Academic Year	Learning Characteristics instilled in the curriculum	Career Opportunities
Please stipulate term and approx. date. Half term 2: visitors from university to come in and present linked to chemical reactions.	Confidence, Manipulation of apparatus, consolidation tasks, presentation on evolution, group work, practical work to involve different students being leaders of their group. Positive	Please stipulate term and approx. date. Brewing industry -half term 3 Electrical engineering/electrician apprenticeships talk- half term 4

<p>Formula 1 for Schools visit to the school - Spring half term 3.</p> <p>Half term 3: visit to brewery.</p> <p>Half term 5: Chester Zoo visit. Prefer to split the year group over 2 days.</p>	<p>Use of praise and rewards. Engaging lessons. Competitions and trips and visitors. Positive feedback and encouragement to participate. Use of positive comments/texts home. Practical work.</p> <p>Respectful Class rules to be followed, meet and greet at door. Encourage respect for all. Treat equipment with respect.</p>	
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Metacognition Methods applied in Teaching

Consolidation at the start of every lesson - departmental format of 4 questions for all plus an extension question.

Regular questioning in class and for homework to support recall.

Opportunities to plan own investigations to develop planning and problem solving skills.

Modelling more complex equations.

Develop verbal and written answers using debates, evaluations and targeted writing.

Use of mnemonic devices to support learning of equations/ key concepts.

Use of word roots to access new terminology.

Ensure the level of challenge is appropriate to the learning. Scaffolding where necessary.

Chunking of information, avoid overloading pupils with new concepts.

