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

Year 7

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

<table>
<tr><td></td><td></td><td colspan="3">Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.</td></tr>
<tr><td>Spring Half Term 3</td><td>Half Term 4</td><td colspan="3">Key Vocabulary/Reading Opportunities</td></tr>
<tr><td rowspan="2">Topic Areas to be covered:
Variation
Acids & alkalis</td><td rowspan="2">Topic Areas to be covered:
Light
Metals & non-metals</td><td>Variation
Species
Variation
Continuous
Discontinuous
Inherited
Environmental

Acids & alkalis
pH scale
Indicator
Base
Concentration
Neutralisation
Salt
Neutral</td><td>Light
Incident
Reflected
Normal
Angle of reflection
Angle of incidence
Refraction
Absorption
Scattering
Transparent
Translucent
Opaque
Vacuum
Convex lens
Concave lens
Retina</td><td>Metals & non-metals
Metals
Non metals
Displacement
Oxidation
Reactivity
Malleable
Ductile
Brittle
Conductor
Insulator
Physical property
Chemical property</td></tr>
<tr><td colspan="3">Reading: Textbooks: Activate 1, Activate 2, Horrible Science series, news sites, BBC Bitesize, journal articles and websites as appropriate. Detail on schemes of work.</td></tr>
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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	Energy transfers Energy store Thermal Chemical Kinetic Gravitational potential Elastic potential Dissipated Conserved Efficiency	Universe Galaxy Light year Stars Orbit Exoplanet Solar system	Sound Vibration Longitudinal wave Volume Pitch Amplitude Wavelength Frequency Vacuum Oscilloscope Absorption Auditory range Echo	Interdependence 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.

Liverpool World Museum – Summer half term 6.	build confidence with equipment they have not met before. Use of key vocabulary. Group project on the universe. **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. **Respectful** – Meet and greet at door. Respecting peers in group work. Use equipment appropriately. Build respectful relationships in the classroom.	Institute of Physics visitor Graham Perrin – Summer half term 5.

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

Autumn Half Term 1	**Half Term 2**	**Key Vocabulary/Reading Opportunities**			
Topic Areas to be covered: Digestion Earth structure Wave properties	Topic Areas to be covered: Breathing Heating & cooling Separating mixtures	Digestion Enzymes Fibre Carbohydrates Lipids Protein Stomach Small intestine Large intestine Gut bacteria Salivary glands Liver Bile Amylase Protease Lipase Hydrochloric acid Earth structure Rock cycle	Sedimentary Igneous Metamorphic Strata Compaction Cementation Fossils Wave properties Waves Vibration Transverse Longitudinal Transmission Reflection Absorption Superposition Breathing Breathing	Alveoli Ribs Diaphragm Lung volume Contract Volume Pressure Asthma Emphysema Drug Alcohol Nicotine Tar Carbon monoxide Depressant Stimulant Addiction Withdrawal Heating & cooling	Thermal energy Conduction Convection Radiation Particles Vacuum Separating mixtures Solvent Solute Dissolve Soluble Solubility Pure Mixture Filtration Distillation Evaporation Condensation

		Weathering Erosion Minerals	Trachea Bronchi Bronchioles	Thermal conductor Thermal insulator Temperature	Chromatography
		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 Contact forces	Topic Areas to be covered: Movement Types of reaction Current	Plant reproduction Pollen Ovules Pollination Fertilisation Seed Fruit Carpel Dispersal Competition	Contact forces Equilibrium Deformation Linear relationship Newton Resultant force Friction Drag Tension Compression Contact force Origin	Movement Joints Bone marrow Ligaments Tendons Cartilage Antagonistic Contract Relax Skeleton Types of reaction Fuel Chemical reaction Physical change Reactants Products Conserved Combustion	Current Current Charge Series Parallel Electrons Field

				Thermal decomposition Conservation (of mass)	
		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: Inheritance Energy costs	Topic Areas to be covered: Wave effects Periodic table	Inheritance Inherited characteristics DNA Chromosomes Gene Parents Offspring Fertilisation Mutation	Energy costs Power Energy resource Non-renewable Renewable Fossil fuels	Wave effects Ultrasound Ultraviolet Microphone Loudspeaker Pressure wave Amplitude Frequency	Periodic table Physical properties Chemical properties Groups Periods Reactivity Alkali Earth metals Halogens Noble gas
		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 8

Cultural Capital Experiences throughout the Academic Year	Learning Characteristics instilled in the curriculum	Career Opportunities
Please stipulate term and approx. date. Half term 2: Medical Mavericks to come in. Half term 4: Trip to Electric mountain Half term: visit to Myerscough or visitors in from Myerscough	**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. **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. **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.	Please stipulate term and approx. date. Half term 2: PT/sports visitors. Medical Mavericks links to health careers. Half term 3: Climate change talk/presentation Half term 5: Forensic science

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

Autumn Half Term 1	Half Term 2	Key Vocabulary/Reading Opportunities			
Topic Areas to be covered: Pressure Photosynthesis	Topic Areas to be covered: Work Chemical energy	Pressure Volume Area Fluid Pressure Upthrust Atmospheric pressure Collisions	Photosynthesis Photosynthesis Chlorophyll Stomata Starch Iodine Growth Fertilisers	Work Work Energy transfer Lever Input force Output force Turning force Moment Pivot Displacement Deformation	Chemical energy Exothermic Endothermic Temperature change Energy level diagram Chemical bond Catalyst
		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: Speed Respiration	Topic Areas to be covered: Climate & Earth's resources Voltage & resistance	Speed Average speed Relative motion Stationary Acceleration Distance time graph Gradient Motion	Respiration Aerobic respiration Anaerobic respiration Fermentation Lactic acid Mitochondria Fatigue	Climate & Earth's resources Global warming Fossil fuels Carbon sink Carbon cycle Greenhouse effect Re-radiated Atmosphere Emissions Natural resources Mineral Ore Extraction Recycling Electrolysis Reactive	Voltage & resistance Potential difference Resistance Electrical conductor Electrical insulator
		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: 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. Formula 1 for Schools visit to the school – Spring half term 3. Half term 3: visit to brewery. Half term 5: Chester Zoo visit. Prefer to split the year group over 2 days.	**Confidence,** Manipulation of apparatus, consolidation tasks, presentation on evolution, group work, practical work to involve different students being leaders of their group. **Positive** 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. **Respectful** Class rules to be followed, meet and greet at door. Encourage respect for all. Treat equipment with respect.	Please stipulate term and approx. date. Brewing industry –half term 3 Electrical engineering/electrician apprenticeships talk– half term 4

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.