

KS3 ELC Science Year 2 Curriculum Plan 2023-2024

Term	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Component	Component 2A – Biology: Environment, Evolution and Inheritance	Component 2B – Biology: Environment, Evolution and Inheritance Component 4A – Chemistry: Chemistry in Our World	Component 4B and 4C – Chemistry: Chemistry in Our World	Component 6A , 6B – Physics: Electricity, Magnetism and Waves	Component 6C, 6D – Physics: Electricity, Magnetism and Waves	
Learning Outcomes	<i>2A: Students will learn about the relationships between an organism and their environment. Including the effect humans have on their environment.</i> Topics: Relationships and Energy Transfer in an Ecosystem Describe how plants, as produces, create food and how the energy from State how organisms adapt to their environment and how they impact on an ecosystem How life on Earth developed and why there is a variety of organisms, all different State what is Darwins theory of evolution and how this lead to a variety of organisms Explain the evidence to support Darwins theory of evolution	<i>2B: Students will learn how genetic information is passed from generations of organisms and how this can lead to similarities and changes</i> Topics: Genetic Inheritance State the difference between sexual and asexual reproduction and how this leads to similarities and changes Explain how genetic material is transferred and draw a genetic diagram to illustrate inheritance of features <i>4A: Students will learn what is involved in a chemical reaction. How the rate of reactions can be controlled.</i> Topics: Acids and Alkalies Describe a common reaction of an acid with and Alkali, identifying the correct test for the gas produced State a neutralisation reaction and explain the reactants and products from the reaction. Rate of Reaction State what is meant by an exothermic and an endothermic reaction	<i>4B: Students will learn how the Earth's atmosphere was formed and how photosynthesis played a vital role</i> Topics: Earth's Atmosphere Identify the evolution of the Earth's atmosphere and its current composition State how the atmosphere changed over the time and how plants facilitated this <i>4C: Students will learn how fuels are formed and the purification of water, investigating the effects on the environment</i> Topics: Fuels Describes the formation of fossils fuels and their uses State the equation for combustion and explain the problems from incomplete combustion Water for Drinking Explain why it is important to treat water before it can be consumed	<i>6A: Students will learn how electricity flows through a current and the effects of resistance</i> Topics: Electrical Current State what electricity is and how it transfers energy Describe how we can measure the flow of electricity Resistance State what is meant by electrical resistance Explain what the effects of resistance are on the current Measure the resistance of a material in a circuit <i>6B: Students will learn what alternate and direct current are and the applications of both in the home</i> Topics: Electricity in the Home State what is meant by an AC and DC electrical supply Describe the three wires in a plug and state their function Calculate the amount of energy an appliance in the home needs to operate	<i>6C: Students will learn the characteristics of a magnet and how these can be used to induce a current</i> Topics: Magnets Identify the poles of a magnet and state what happens when they interact Describe the shape of a magnetic field around a magnet Electromagnets State what is needed to create an electromagnetic force Identify how the strength of an electromagnet can be increased <i>6D: Students will learn about the different types of waves and how they form the electromagnetic spectrum</i> Topics: Waves State how waves transfer energy Identify the two types of waves and their characteristics	

		Describe the factors which will affect the rate of a chemical reaction			Calculate wave speed Electromagnetic Spectrum State the different waves of the electromagnetic spectrum Identify the uses of the waves of the EM spectrum	
Required Practical Activities	Photosynthesis Effect of light intensity on the rate of photosynthesis Adaptation Chambers for woodlice Decay How the temperature of grass cuttings changes over time	Inherited Characteristics Is there a link between two inherited features Reactions of Acids Compare the reaction of acids with different carbonates Rate of Reaction How does concentration effect the rate of reaction	Comparing Amounts of Gases Measure the amount of carbon dioxide in air and exhaled breath Products of Combustion Investigate the amount of soot produced by burning different fuels Quality of Water Test the amount of solutes dissolved in different sources of water, by evaporation and weighing	Best Conductors Investigate which material are the best conductors Current/Potential Difference Graphs Plot the graphs of three components in a circuit Measuring Resistance Investigate the resistance of different components in a circuit	Electromagnets Investigate the factors which effect the strength of an electromagnet Wave Strength Investigate shielding of different material of a mobile phone signal and wifi	
Assessment	In class written assessment on outcomes of the first topic, to be completed and marked before data submission. Any TDA that may have been complete can be used to judge progress	TDA and ESA for component 2, to be complete and marked by the data submission. Any of the highlighted practical's can be used as TDA	TDA and ESA for component 4, to be complete and marked by the data submission. Any of the highlighted practical's can be used as TDA	In class written assessment on outcomes of 6A and 6B topics, to be completed and marked before data submission. Any TDA that may have been complete can be used to judge progress	TDA and ESA for component 6, to be complete and marked by the data submission, deadline for ELC 00.05.2021.. Any of the highlighted practical's can be used as TDA	
Enrichment	Grow your own plant	Genetics activity at science museum (to be booked)	Water treatment plant (tower in stoke Newington)	National grid tour by NG OR Create your own power station	<u>Events - Energy Saving Trust</u>	