

Year 8 Science

Medium Term Plan

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Year 8 Autumn Term

Energy

What previous learning am I building on?	What am I learning that is new?
Energy topic not covered at KS2	By the end of this unit, I will: • Calculation of fuel uses and costs in the domestic context • comparing energy values of different foods (from labels) (kJ) • comparing power ratings of appliances in watts (W, kW) • comparing amounts of energy transferred (J, kJ, kW hour) • domestic fuel bills, fuel use and costs • fuels and energy resources • heating and thermal equilibrium: temperature difference between 2 objects leading to energy transfer from the hotter to the cooler one, through contact (conduction) or radiation; such transfers tending to reduce the temperature difference; use of insulation • heating and thermal equilibrium: temperature difference between 2 objects leading to energy transfer from the hotter to the cooler one, through contact (conduction) or radiation; such transfers tending to reduce the temperature difference; use of insulators
Learning Journey – lesson title and main activities	
1 Food and fuels • State the unit of energy content of food • Compare energy values of food and fuels • Compare energy needs for different activities • Practical opportunity – measuring energy from food – burning food and measuring water temperature change	
2 Energy Adds Up • Law of Conservation of Energy • Concept of energy stores and energy transfers • Practical – Energy conservation practical – Energy circus to observe different types of energy transfers	
3 Energy and Temperature • State the difference between energy and temperature • State what the thermal energy of an object depends upon • Explain, in terms of energy why objects change temperature	
4 Energy Transfer Particles– Conduction and Convection • Describe how energy is transferred by particles in conduction and convection • Demonstration – conduction - conductivity ring (metals) and pins. Convection – potassium permanganate demo • Describe how an insulator can reduce energy transfer • Explain the features of a good insulator	
5 Energy Transfer- Radiation	

- Describe some sources of infrared radiation - Explain how energy is transferred by radiation - Explain why some objects radiate more energy than others Practical Opportunity – Investigation into the effects of different insulating materials on water temperature. Plan and carry out an investigation on how effective different materials are at thermal insulation			
6 Energy Resources - What energy mix does the UK use? - Describe the difference between a renewable and non renewable energy resource - Give examples of each - Compare the advantages and disadvantages of each type of energy resource			
7 Energy and Power - Describe what you pay for when you pay your electricity bill - Calculate the cost for home energy use - Compare energy usage and cost of running different home devices			
8. Work, Energy and Machines - Calculate the work done by a machine - Apply the concept of energy conservation to simple machines Practical opportunity – moment balance			
9. Revision / Summary lesson			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment (every two topics)			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
	Homework will be set to consolidate learning on Satchelone Carousel for revision		

Electricity

What previous learning am I building on?	What am I learning that is new?
KS2 identify common appliances that run on electricity	Current electricity electric current, measured in amperes, in circuits, series and parallel circuits, currents add

- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - recognise some common conductors and insulators, and associate metals with being good conductors - Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches - Use recognised symbols when representing a simple circuit in a diagram	where branches meet and current as flow of charge - potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current - differences in resistance between conducting and insulating components (quantitative) Static electricity - separation of positive or negative charges when objects are rubbed together: transfer of electrons, forces between charged objects - the idea of electric field, forces acting across the space between objects not in contact
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Learning Journey – lesson title and main activities

1 Circuits and Current

- Describe what is meant by a current and how it can be measured
- Follow circuit diagrams to accurately measure current in several places in a circuit
- Use the model of current flow to predict how much current you would find at different places in a series circuit
- Practical opportunity** – Investigation into current around a series circuit when changing components

2 Potential Difference

- Define potential difference in a circuit and know its units
- Use a circuit diagram to show how to measure potential difference
- Explain the difference between potential difference and current
- Practical opportunity** – Investigation into potential difference across different components of a series circuit

3 Resistance

- Describe what is meant by resistance
- Calculate the resistance of components in simple circuits
- Explain why temperature increases resistance
- Practical opportunity** – Investigation into resistance of a wire

4 Assessed Practical

Practical - Investigation in the effect of cylinder diameter on the resistance – conducting dough

5 Series and Parallel

- Describe how current and potential difference vary in series and parallel circuits
- Explain why parallel circuit is more suitable for use when wiring a house
- Explain the pattern in current and potential difference readings for series and parallel circuits
- Practical opportunity** – Building a range of different circuits – Series and Parallel

6 Charging up – Static Electricity

- Describe how objects can become charged and how charged objects interact
- Explain, in terms of electrons how an object becomes charged
- Explain simple electrostatic effects in an everyday situation
- Practical opportunity** – Charging materials using friction

7 Revision / Summary lesson

How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment (every two topics)			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
	Homework will be set to consolidate learning on Satchelone Carousel for revision		

Acids and Alkalis

What previous learning am I building on?	What am I learning that is new?		
KS2: Pupils will know that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. KS3: Pupils will have learned about the particle model in year 7 spring term, and then elements, atoms, compounds and chemical formulae in year 7 summer term. Pupils will apply this knowledge to the context of acids and alkalis.	- Describe the difference between physical and chemical changes, and acids and alkalis. - Write word equations to explain acid and alkali reactions on a molecular level. - Investigate the link between concentration and neutrality and draw scientific conclusions based on suitably tabulated observations. - defining acids and alkalis in terms of neutralisation reactions - the pH scale for measuring acidity/alkalinity; and indicators		
Learning Journey – lesson title and main activities			
1 Chemical Reactions			
Science skills: Complete 4 experiments to deduce whether a described change is physical or chemical.			
2 Acids and Alkalis			
- Literacy: Describe and compare the properties of acids and alkalis. Practical – Use of red and blue litmus paper to test a variety of substances			
3 Indicators			
- Data: Collect experimental data to determine if substances are acids or alkalis and write up results in a suitable table. Practical - Use of universal indicator to determine the pH of different substances Practical – To make own indicator solution using Red Cabbage			
4 Neutralisation			
- Science Skills: Use acidic and alkaline solutions of varying concentrations to make a neutral solution. Use the results to write a scientific conclusion that links concentration to pH. Practical Carry out a neutralisation practical			
5 Salts			
Formulae: Name salts and then use scaffolds to create word equations for neutralisation.			
6 Summative Lesson			
Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment (every two topics)			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
Compare and contrast tasks, writing chemical equations, supported summarisation of key information from texts.	Homework will be set to consolidate learning on Satchelone Carousel for revision	Links for pH scale , acids and bases , and concentration of acids at GCSE level.	Try researching via BBC Bitesize, which has a specific area on acids and alkalis .

Types of Reaction

What previous learning am I building on?	What am I learning that is new?
Build on the year 7 topic particles	By the end of this unit, I will: - Describe what happens to atoms in a chemical reaction - Explain how mass changes in a chemical reaction. - a simple (Dalton) atomic model - differences between atoms, elements and compounds - chemical symbols and formulae for elements and compounds - conservation of mass changes of state and chemical reactions - chemical reactions as the rearrangement of atoms - representing chemical reactions using formulae and using equations - combustion, thermal decomposition, oxidation
Learning Journey – lesson title and main activities	
1 Atoms in Chemical Reactions - What are atoms? - Learn the difference between chemical and physical change. - How to represent a chemical reaction? (Word and Symbol equations) - Write word equations from information about chemical reactions	
2 Combustion - State what 3 things are needed for combustion (the fire triangle) - Write word equations for combustion - Use particle diagrams to show combustion. - Design an experiment to show the products of combustion of hydrocarbons - Matches in space: Can a match burn in space? Students are given statements of differing views, and they are expected to say who they agree with and why	
3 Thermal Decomposition - State what is meant by thermal decomposition. - Write word equation for thermal decomposition. - Practical decomposition reactions: - Students observe a demonstration of decomposition reactions of 3 metals carbonates and decide which decomposes most easily.	
4 Conservation of mass - State that chemical changes can be described by a model in which atoms in reactants rearrange to make products. - explain observations about mass in a chemical or physical change. - Practical: In this practical you will: observe the mass during two different reactions and use your knowledge of the reactions to explain the results you obtain.	
5 Comparing fuels - Assessed practical lesson on comparing the energy of different fuels. - Students are expected to plan and perform a valid experiment. - Describe how energy released depends on type of fuel and how to measure this using water. - Evaluate fuel experiment results.	
How will I be assessed at the end of this unit?	
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment (every two topics)	

How will my literacy/Numeracy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
Predicting, making inferences, describing relationships Data analysis on comparing energy from different fuels	Homework will be set to consolidate learning on Satchelone Carousel for revision	Use Seneca learning to both learn more and consolidate learning.	BBC bitesize and the kerboodle book online.

Breathing

What previous learning am I building on?	What am I learning that is new?
Builds on understanding of body systems (KS2) and previous year 7 topic on cells	- By the end of this unit, I will: - The structure and functions of the gas exchange system in humans, including adaptations to function - The mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume Know the effect of Alcohol and Smoking on the human body
Learning Journey – lesson title and main activities	
1. Gas Exchange State the parts of the gas exchange system and describe how parts of the gas exchange system are adapted for their function (alveoli) Data - Interpret data given to compare the difference in the composition of inhaled and exhaled air. EXT: Describe the gas exchange system as an organ system, linking the organs.	
2 Breathing - Why we breathe? Model - Bell Jar model of lungs to demo mechanism of breathing in and out Describe the processes of inhaling and exhaling. - Describe how a bell jar can be used to model what happens during breathing. - EXT: Explain the similarities and differences between the bell jar and the breathing system	
3. Core Practical Use apparatus to measure lung volume and peak flow -Safely perform an investigation. Measuring lung volume, peak flow and student height -Data – Present class results (scatter graph) – relationship between height and lung volume / peak flow	
4 Drugs – recreational and medicinal What is a drug? Name some recreational and medicinal drugs. Describe some effects of drugs on health and behaviour. Literacy - Complete summary table using information provided (drugs circus activity)	
5 Alcohol - Describe the effect of alcohol on health and behaviour. Describe the effect alcohol has on conception and pregnancy.	

Data - Design a results table and plot subsequent experimental data on an appropriate graph – looking at reaction time and seeing impact of alcohol consumption			
6 Smoking - Describe the effects of tobacco smoke on health and explain the effects of tobacco smoke on health Describe the effects of tobacco smoke on pregnancy. Practical Demo – Smoking machine to show key component of cigarettes			
7. Enrichment Lesson An evaluation of vaping - looking at illegal vapes and current concerns/risks. BBC Documentary with question sheet			
7. Summative lesson Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my numeracy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
Data analysis – inhaled and exhaled air Scatter graphs – height and lung capacity	Homework will be set to consolidate learning on Satchelone Carousel for revision		Try researching via BBC Bitesize, which has a specific area on respiration and gas exchange and recreational drugs

Year 8 Spring Term

Digestion

What previous learning am I building on?	What am I learning that is new?
From KS2 Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. Pupils might work scientifically by: exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.	- Content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed - Calculations of energy requirements in a healthy daily diet - The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases - The tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts) - The importance of bacteria in the human digestive system
Learning Journey – lesson title and main activities	
1 Nutrients / Balanced Diet - Describe the different nutrients required for a balance diet - Explain the roles of different nutrients in healthy development	
2 Food tests	

Practical – Carry out the simple food tests for starch, reducing sugars (glucose), protein and fat - Plan an investigation using the food tests to investigate the presence of different food groups in food EXT: Evaluate the reliability of the different food tests used			
3 Unhealthy Diets - Define terms malnourished, under weight, vitamin or mineral deficiency and over weight - Investigate the consequences of imbalances in a person's diet			
4 The Digestive System - Describe the structure and function of the digestive system - Explain how the digestive system is ADAPTED to digest food			
5 Bacteria and Enzymes - Describe and explain the role of bacteria and enzymes in digestion - Explain how enzymes affect the rate of digestion			
6. Practical – Energy content of food Practical - Burning food to measure the energy content – as a class comparing different food types			
7 Revision / Summary lesson Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
	Homework will be set to consolidate learning on Satchelone Carousel for revision		

Photosynthesis

What previous learning am I building on?	What am I learning that is new?
KS2 - Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. - Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Year 8 – Food tests – iodine for starch	By the end of this unit, I will learn: - The reactants in, and products of, photosynthesis, and a word summary for photosynthesis. - The dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere. - The adaptations of leaves for photosynthesis. - The role of leaf stomata in gas exchange in plants. - Plants making carbohydrates in their leaves by photosynthesis and gaining mineral nutrients and water from the soil via their roots.
Learning Journey – lesson title and main activities	
1 Photosynthesis - Describe the process of photosynthesis - Write word equation to describe photosynthesis	
2 Leaves Diagrams: Label a diagram of the structures of a leaf and their functions.	

• Practical: Observing the stomata of a leaf			
3 Testing a leaf for starch • Practical: Testing a leaf for starch – comparing leaf from a plant in the light with a leaf from a plant in the dark • Recall iodine as a test for starch			
4 Plant Minerals • Writing: Produce a paragraph about plant minerals • Role of fertilisers with particular focus on the role of nitrates			
5 Summative - Revision lesson Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
Reading aloud, discussion, retrieving information from texts and writing paragraphs	Homework will be set to consolidate learning on Satchelone Carousel for revision	YouTube links for Photosynthesis and Factors affecting the rate of photosynthesis at GCSE level	Try researching via BBC Bitesize, which has a specific area on Photosynthesis

Respiration

What previous learning am I building on?		What am I learning that is new?	
KS2: - Describing the ways in which nutrients and water are transported within animals, including humans. KS3: - Stating structural adaptations of plant and animal cells, summarising this in a table or as a model - Explaining how the different tissues in an organ, and the different organs in an organ system function together		- Aerobic and anaerobic respiration in living organisms, including the breakdown of organic molecules to enable other chemical processes necessary for life. - Word summaries for aerobic and anaerobic respiration - The differences between aerobic and anaerobic respiration in terms of the reactants, the products formed and the implications for the organism.	
Learning Journey – lesson title and main activities			
1 Aerobic Respiration Diagrams: Be able to draw an animal and plant cell and identify the sites of cellular respiration.			
2 Anaerobic Respiration Formulae: Write word and symbol equations to describe aerobic and anaerobic respiration			
3 Biotechnology Literacy: Write a short paragraph describing how bread, wine and beer are produced, highlighting the similarities and differences between the methods			
4 Assessed Practical – Investigating the rate of fermentation Science skills: Using yeast and glucose to identify factors that increase fermentation			
5 Data lesson Numeracy: Drawing graphs from supplied data			
6 Summative lesson Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
Reading aloud, discussion, compare and contrast, writing equations	Homework will be set to consolidate learning on Satchelone Carousel for revision	YouTube links for aerobic respiration , anaerobic respiration and fermentation at GCSE level	Try researching via BBC Bitesize, which has a specific area on respiration and gas exchange

Sound

What previous learning am I building on?	What am I learning that is new?
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From KS2 • identify how sounds are made, associating some of them with something vibrating • recognise that vibrations from sounds travel through a medium to the ear • find patterns between the pitch of a sound and features of the object that produced it • find patterns between the volume of a sound and the strength of the vibrations that produced it • recognise that sounds get fainter as the distance from the sound source increases	By the end of this unit, I will: • frequencies of sound waves, measured in hertz (Hz); echoes, reflection and absorption of sound • sound needs a medium to travel, the speed of sound in air, in water, in solids • sound produced by vibrations of objects, in loudspeakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal • the auditory range of humans and animals		
Learning Journey – lesson title and main activities			
1 Sound waves and speed • State the speed of sound and what it can and cannot travel through • Describe how sound is produced and how it travels • Explain observations where sound is transmitted Practical – making sounds using a ruler – changing pitch and loudness			
2 Loudness and amplitude • Describe the link between loudness and amplitude • Explain observations where sound is reflected or absorbed by different media • Describe the amplitude of a wave from a diagram • Use drawings of waves to describe how sound waves change volume			
3 Frequency and pitch • Describe the link between frequency and wavelength • Describe the frequency of a wave from a diagram • Use drawings of waves to describe how sound waves change pitch. Practical – Use of signal generator and online oscilloscope to observe wave changes with different pitch/frequency and determine students hearing range			
4 The ear and hearing • Name some parts of the ear • Describe how the ear works • Describe how your hearing can be damaged			
6 Summative lesson Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
	Homework will be set to consolidate learning on Satchelone Carousel for revision		

Light

What previous learning am I building on?			
KS2 - recognise that light appears to travel in straight lines - use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye - explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes - use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them		By the end of this unit, I will: - the similarities and differences between light waves and waves in matter - light waves travelling through a vacuum; speed of light - the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface - use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye - light transferring energy from source to absorber, leading to chemical and electrical effects; photosensitive material in the retina and in cameras - colours and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection	
Learning Journey – lesson title and main activities			
1 Light – intro - Describe what happens when light rays meet different medium. - State the speed of light. - Use ray diagrams of eclipses to describe what is seen by observers.			
2 Reflection			
3 Refraction			
4 The eye and vision			
5 Colour			
6 Summative lesson Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
	Homework will be set to consolidate learning on Satchelone Carousel for revision		

Metals and Non Metals

What previous learning am I building on?		What am I learning that is new?	
KS2 compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets		By the end of this unit, I will: - the properties of metals and non-metals - the chemical properties of metal and non-metal oxides with respect to acidity - the order of metals and carbon in the reactivity series	
Learning Journey – lesson title and main activities			
1 Intro – Metals and Non Metals			
2 Metals and Non Metals Oxides			
3 Metals and Acids			
4 Metals and Oxygen			
5 Metals and Water			
6 Metal Displacement Reactions			
7 Summative lesson			
Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
	Homework will be set to consolidate learning on Satchelone Carousel for revision		

Year 8 Summer Term

Periodic Table

What previous learning am I building on?	What am I learning that is new?		
Year 7 - a simple (Dalton) atomic model - differences between atoms, elements and compounds - chemical symbols and formulae for elements and compounds	By the end of this unit, I will: - conservation of mass changes of state and chemical reactions The periodic table - the varying physical and chemical properties of different elements - the principles underpinning the Mendeleev periodic table - the periodic table: periods and groups; metals and non-metals - how patterns in reactions can be predicted with reference to the periodic table - the properties of metals and non-metals - the chemical properties of metal and non-metal oxides with respect to acidity		
Learning Journey – lesson title and main activities			
1 Intro – The Periodic Table			
2 Periodic Table – Group 1			
3 Periodic Table – Group 7			
4 Periodic Table – Group 0			
5 Summative lesson			
Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my numeracy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
	Homework will be set to consolidate learning on Satchelone Carousel for revision		

Magnetism

What previous learning am I building on?	What am I learning that is new?		
	By the end of this unit, I will: Magnetism • magnetic poles, attraction and repulsion • magnetic fields by plotting with compass, representation by field lines • Earth’s magnetism, compass and navigation • the magnetic effect of a current, electromagnets, DC motors (principles only)		
Learning Journey – lesson title and main activities			
1 Magnets and Magnetic Fields			
2 Electromagnets			
3 Using Electromagnets			
7 Summative lesson			
Revision techniques: summarising and making notes			
How will I be assessed at the end of this unit?			
A knowledge-based retrieval quiz will be administered at the end of this unit. The essential information will be provided in advance. Summative assessment – through end of topic assessment			
How will my numeracy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
	Homework will be set to consolidate learning on Satchelone Carousel for revision		

Crick Project / Investigation

The Year 8 challenge takes inspiration from the key role that mucus plays in the healthy functioning of many of the body's organ systems, including the respiratory system.

Often taken for granted, the complex interplay between the chemical and physical properties of mucus is fundamental in providing a key line of defence from pathogens. Whether it be the flu, tuberculosis, or other respiratory diseases researched by scientists at the Crick, mucus and its viscosity really does matter.

In this project, the increased risk of infection due to a change in mucus viscosity of the respiratory system is considered in the context of cystic fibrosis. Although not a condition researched at the Crick, the approach to fundamental research and its translation into the clinic are central to the way in which science works at the Crick.

What previous learning am I building on?		What am I learning that is new?	
From KS3 - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies' function. From Year 8 - The structure and functions of the gas exchange system in humans, including adaptation to function.		- Act as observers to obtain data about natural phenomena using human senses - Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience - Carry out scientific enquiries - Make and record observations and measurements - Use simple equations and carry out appropriate calculations - Present observations and data using appropriate methods, including tables and graphs - Interpret data, including identifying patterns and using measurements and data to draw conclusions - Present reasoned explanations, including explaining data in relation to predictions - Identify further questions arising from results - Consider the quality of experimental evidence by evaluating control of variables and suggesting improvements	
Learning Journey – lesson title and main activities			
1 Mucus viscosity and cystic fibrosis - An introduction to the term viscosity, mucus and the features of cystic fibrosis. - Trial investigation to access the potential use of medication to alter the viscosity of mucus. - Familiarisation with equipment			
2 Investigating a solution – fundamental research - Make a prediction based on previous lesson trail and other secondary information - Exam variables in the investigation - Work collaboratively to carry out the investigation and collect data - Calculate mean values and identify the relationship between the concentration of <i>Viscol</i> and mucus viscosity			
3 From research to treatment - Use of graphs to illustrate trends in data - Examine levels of air pollution during the day in Camden - Discuss suitable actions to reduce air pollution on the basis of the trend identified.			
How will I be assessed at the end of this unit?			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
Students will be using the following literacy skills: predicting, making			

inferences, describing relationships in data			
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Curriculum Road Map KS3 Science 2024

Single Attainment Target:

Students should have knowledge of scientific theories and be able to apply them in different contexts, know how to plan and carry out investigations and interpret and evaluate evidence.



Triple or Combined Science

GCSE course starts

Bigger Picture

Energy & Reactions

What is the world made of?



