

8.1 - Navigator Curriculum – Long Term Plan

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Year	2022 – 2023 Autumn 1 Unit 1	2022 – 2023 Autumn 2 Unit 2	2022 – 2023 Spring 1 Unit 3	2022 – 2023 Spring 2 Unit 4	2022 – 2023 Summer 1 Unit 5	2022 – 2023 Summer 2 Unit 6
	<p>Topic: (1) Health & Lifestyle B2.1 (2) The Periodic Table C2.1</p> <p>Suggested Key Questions: What do we need to maintain a healthy lifestyle? What does the periodic table show?</p> <p>Key Skills and Knowledge: Health & Lifestyle B2.1</p> <ul style="list-style-type: none"> • Name some nutrients in a given diet. • Name the nutrients required by the human body. • State that food can be tested for starch, lipids, sugar, and protein. • State that food tests show colour changes. • State one potential problem for someone with an unhealthy diet. 	<p>Topic: (1) Electricity P2.1</p> <p>Suggested Key Questions: How is electricity generated and what measurements can be taken in a circuit?</p> <p>Key Skills and Knowledge: Electricity P2.1</p> <ul style="list-style-type: none"> • Describe how to charge insulators. • State the two types of charge. • State what surrounds charged objects. • Name what flows in a circuit. • Name the equipment used to measure current. • Name the equipment used to measure current. • State the unit of potential difference. 	<p>Topic: (1) Ecosystem processes B2.2</p> <p>Suggested Key Questions: What is and ecosystem and what processes take place in an ecosystem?</p> <p>Key Skills and Knowledge: Ecosystem processes B2.2</p> <ul style="list-style-type: none"> • State where photosynthesis occurs in a plant • State the products of photosynthesis. • Carry out an experiment to test for the presence of starch in a leaf. • Name the main structures of a leaf. • State the function of the chloroplasts in a leaf. • Name the minerals required by plants. 	<p>Topic: (1) Separating Techniques C2.2 (2) Energy P2.2</p> <p>Suggested Key Questions: How can we separate various mixtures? What is energy and how is it transferred?</p> <p>Key Skills and Knowledge: Separating Techniques C2.2</p> <ul style="list-style-type: none"> • State that parts of mixtures are not joined together. • State that different substances in mixtures have their own melting points. • Choose a simple separation technique with help. • Identify a solvent, solute, and solution in a given scenario. 	<p>Topic: (1) Adaptation & Inheritance B2.3 (2) Metals & Acids C2.3</p> <p>Suggested Key Questions: How have organisms adapted over time? What products are formed when metals react with acids?</p> <p>Key Skills and Knowledge: Adaptation & Inheritance B2.3</p> <ul style="list-style-type: none"> • State some resources that plants and animals compete for. • State what is meant by the term adaptation. • Name an environmental change. • Give a possible reason for adaptation or extinction. 	<p>Topic: (1) Motion & Pressure P2.3 (2) The earth C2.4</p> <p>Suggested Key Questions: How can we calculate the speed of an object? What are the different layers of the Earth?</p> <p>Key Skills and Knowledge: Motion & Pressure P2.3</p> <ul style="list-style-type: none"> • State the equation for speed. • Define relative motion. • Describe simply what a distance-time graph shows. • Use a distance-time graph to describe a journey qualitatively. • State two things that can affect gas pressure. • State the cause of atmospheric pressure.

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<ul style="list-style-type: none"> • State that different people require different amounts of energy. • Name the main parts of the digestive system • State what is meant by digestion • Label a diagram of the digestive system by identifying correct information in text • Name some enzymes used in digestion. • State where bacteria are found in the digestive system. • Name some recreational and medicinal drugs. • State one effect of a drug on health or behavior. • Name one effect of alcohol on health or behaviour • State whether alcohol affects conception and pregnancy • Name an effect of tobacco smoke on health • State whether or not tobacco smoke affects the development of a fetus <p>The Periodic Table C2.1</p> <ul style="list-style-type: none"> • State some common properties of 	<ul style="list-style-type: none"> • Name the equipment used to measure potential difference. • Describe the effect of a larger potential difference. • State one difference between series and parallel circuits. • State how current varies in series and parallel circuits • Identify the pattern of current in series and parallel circuits • State the unit of resistance. • Compare simply the resistance of conductors and insulators. • List examples of conductors and insulators. • Describe features of a magnet. • Draw the magnetic field lines around a bar magnet. • State the Earth has a magnetic field • Record the shape of field lines round a magnet. • State the main features of an electromagnet. • State one difference between permanent magnets and electromagnets. • Test the effect of changing an electromagnet. 	<ul style="list-style-type: none"> • State that nitrates are essential for plant growth. • Record measurements of plant growth. • Name an organism which carries out chemosynthesis. • State the energy source for chemosynthesis. • State how the scientific community view the discovery of Chemosynthesis. • State the requirements for aerobic respiration. • Give the name of the process where energy is released in cells. • Explain the uses of the products from anaerobic respiration. • Explain the differences between the two types of respiration. • State the definition of a food chain • State the definition of a food web. • State that one population of organisms can affect another. • State that toxic material can get into food chains. • State that different organisms can co-exist. 	<ul style="list-style-type: none"> • State a solution contains dissolved particles. • Describe what happens when a solute dissolves. • Describe how temperature affects solubility. • Name the filtrate and residue in given situations. • State some situations in which filtering is used. • Draw a labelled diagram of the apparatus needed to filter a solution. • State some mixtures that can be separated using evaporation. • State some mixtures that can be separated using distillation. • Label distillation apparatus. • State what happens to mixtures when they undergo chromatography. • Describe what a chromatogram looks like. • Identify the pen used to write a forged cheque by comparing chromatograms. <p>Energy P2.2</p>	<ul style="list-style-type: none"> • State what is meant by the term variation. • State that variation is caused by the environment or inheritance. • State that there are two types of variation. • State the two types of graphs that can be drawn when representing the two types of variation. • State what is meant by a gene. • State that more than one scientist was involved in discovering the structure of DNA. • State that the different teams of scientists produced different pieces of evidence. • State how survival rates differ for successful adaptation. • State organisms have changed over time, giving examples. • Create a simple evolutionary sequence. • State what is meant by the term extinct. • State how scientist try to prevent extinction. 	<ul style="list-style-type: none"> • Describe the effects of atmospheric pressure. • State simply what happens to pressure with depth. • Describe characteristics of some objects that float and some that sink. • State the equation of pressure. • Use ideas of pressure to describe familiar situations qualitatively. • State the law of moments. • State the equation to calculate a turning force. <p>The earth C2.4</p> <ul style="list-style-type: none"> • Name the layers of the Earth. • Name the main components of the atmosphere. • Design a simple model of the Earth using information about its structure. • State a property of sedimentary rocks. • Describe simply how sedimentary rocks are made. • State the processes shown by different models of the stages in sedimentary rock formation.
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	<p>metals and non-metals.</p> <ul style="list-style-type: none"> • Use position on the Periodic Table to suggest if an element is a metal or a non-metal. • Identify changes in properties between elements of the same group or period. • Describe in simple terms what pattern is shown in a given property of a group or period. • Describe, in simple terms, how one property changes for the elements of Group 1. • State the products of the reaction between two Group 1 metals with water. • State a pattern shown by the Group 7 elements. • State simply what happens in a displacement reaction. • State what hazards are associated with the Group 7 elements. • State a chemical and a physical property of Group 0 elements. • Describe the reactivity of Group 0 elements. 	<ul style="list-style-type: none"> • State some uses of electromagnets. • State the main parts of a motor. 	<ul style="list-style-type: none"> • State the definition of the term niche. 	<ul style="list-style-type: none"> • Identify energy values for food and fuels. • Describe energy requirements in different situations. • State the definition of the conservation of energy. • State how energy is transferred • State how energy and temperature are measured. • Describe how energy is transferred through solids, liquids, and in air. • Identify a source of error. • Describe simply what happens in conduction and convection. • State that insulators reduce heat loss compared to conductors. • State the pattern in conduction shown in results. • State some properties of infrared radiation. • Name renewable and non-renewable energy resources. • State one advantage and one disadvantage of fossil fuels. 	<p>Metals & Acids C2.3</p> <ul style="list-style-type: none"> • Describe what happens when metals react with acids. • State that hydrogen gas makes a squeaky pop when lit. • State which metals produce bubbles when reacting with acid. • State the product of the reaction between metals and oxygen. • Identify state symbols from an equation. • State the products of the reaction between metals and water. • State whether a metal is more or less reactive than another metal. • State which metal is more reactive in a pair of named metals. • State where different metals are found in the reactivity series. • State where carbon is found in the reactivity series. • Calculate the percentage of waste material in a metal ore. 	<ul style="list-style-type: none"> • State one difference between igneous and metamorphic rocks. • Describe very simply how igneous and metamorphic rocks are formed. • State what you expect to see when a substance representing lava is cooled. • Give simple facts about how a rock can be changed from one type to another. • State what happens to wax in a model rock cycle. • State the changes in levels of carbon dioxide over time. • Name one place carbon dioxide may be stored. • State a cause of global warming. • State one impact of global warming. • Describe how aluminium is recycled. • Give one advantage and one disadvantage of recycling. • Describe how aluminium is recycled. • Give one advantage and one disadvantage of recycling.
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	<p>Key Skills: EP1 Asking scientific questions</p> <ul style="list-style-type: none"> • Identify an observation that could be recorded or measured over time. • Begin to identify a dependent variable, an independent variable, or two variables which may show a correlation. <p>EP2 Planning investigations</p> <ul style="list-style-type: none"> • Begin to test suitability of measuring instrument, and use it correctly. • Carry out the method carefully and consistently. • Identify risks and hazards, and control measures. 	<p>Key Skills: EP1 Asking scientific questions</p> <ul style="list-style-type: none"> • Identify an observation that could be recorded or measured over time. • Begin to identify a dependent variable, an independent variable, or two variables which may show a correlation. <p>EP2 Planning investigations</p> <ul style="list-style-type: none"> • Begin to test suitability of measuring instrument, and use it correctly. • Carry out the method carefully and consistently. 	<p>Key Skills: EP1 Asking scientific questions</p> <ul style="list-style-type: none"> • Identify an observation that could be recorded or measured over time. • Begin to identify a dependent variable, an independent variable, or two variables which may show a correlation. <p>EP2 Planning investigations</p> <ul style="list-style-type: none"> • Begin to test suitability of measuring instrument, and use it correctly. • Carry out the method carefully and consistently. 	<ul style="list-style-type: none"> • State the definitions of energy and power. • State that power, fuel used, and cost are linked. • State how work is calculated. • State machines conserve energy. • State one way the experiment can be improved. <p>Key Skills: EP1 Asking scientific questions</p> <ul style="list-style-type: none"> • Identify an observation that could be recorded or measured over time. • Begin to identify a dependent variable, an independent variable, or two variables which may show a correlation. <p>EP2 Planning investigations</p> <ul style="list-style-type: none"> • Begin to test suitability of measuring instrument, and use it correctly. 	<ul style="list-style-type: none"> • State simple observations during a metal extraction. • List the properties of ceramics • List some uses of ceramics. • State the definition of a polymer. • State some uses of polymers. • Identify a suitable polymer to use when given simple information about the polymer. <p>Key Skills: EP1 Asking scientific questions</p> <ul style="list-style-type: none"> • Identify an observation that could be recorded or measured over time. • Begin to identify a dependent variable, an independent variable, or two variables which may show a correlation. <p>EP2 Planning investigations</p> <ul style="list-style-type: none"> • Begin to test suitability of measuring instrument, and use it correctly. 	<p>Key Skills: EP1 Asking scientific questions</p> <ul style="list-style-type: none"> • Identify an observation that could be recorded or measured over time. • Begin to identify a dependent variable, an independent variable, or two variables which may show a correlation. <p>EP2 Planning investigations</p> <ul style="list-style-type: none"> • Begin to test suitability of measuring instrument, and use it correctly. • Carry out the method carefully and consistently. • Identify risks and hazards, and control measures.
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	<p>EP3 Collecting, recording, and presenting data</p> <ul style="list-style-type: none"> ● Begin to calculate means from data. ● Begin to record observations you want to explain. <p>EP4 Analysing patterns in data</p> <ul style="list-style-type: none"> ● Identify a pattern in data from a results table or bar chart with some support and guidance. ● Make a conclusion and begin to explain it with some support. <p>EP5 Evaluating data and methods.</p>	<ul style="list-style-type: none"> ● Identify risks and hazards, and control measures. <p>EP3 Collecting, recording, and presenting data</p> <ul style="list-style-type: none"> ● Begin to calculate means from data. ● Begin to record observations you want to explain. <p>EP4 Analysing patterns in data</p> <ul style="list-style-type: none"> ● Identify a pattern in data from a results table or bar chart with some support and guidance. ● Make a conclusion and begin to explain it with some support. <p>EP5 Evaluating data and methods.</p>	<ul style="list-style-type: none"> ● Identify risks and hazards, and control measures. <p>EP3 Collecting, recording, and presenting data</p> <ul style="list-style-type: none"> ● Begin to calculate means from data. ● Begin to record observations you want to explain. <p>EP4 Analysing patterns in data</p> <ul style="list-style-type: none"> ● Identify a pattern in data from a results table or bar chart with some support and guidance. ● Make a conclusion and begin to explain it with some support. <p>EP5 Evaluating data and methods.</p>	<p>instrument, and use it correctly.</p> <ul style="list-style-type: none"> ● Carry out the method carefully and consistently. ● Identify risks and hazards, and control measures. <p>EP3 Collecting, recording, and presenting data</p> <ul style="list-style-type: none"> ● Begin to calculate means from data. ● Begin to record observations you want to explain. <p>EP4 Analysing patterns in data</p> <ul style="list-style-type: none"> ● Identify a pattern in data from a results table or bar chart with some support and guidance. ● Make a conclusion and begin to explain it with some support. <p>EP5 Evaluating data and methods.</p>	<ul style="list-style-type: none"> ● Carry out the method carefully and consistently. ● Identify risks and hazards, and control measures. <p>EP3 Collecting, recording, and presenting data</p> <ul style="list-style-type: none"> ● Begin to calculate means from data. ● Begin to record observations you want to explain. <p>EP4 Analysing patterns in data</p> <ul style="list-style-type: none"> ● Identify a pattern in data from a results table or bar chart with some support and guidance. ● Make a conclusion and begin to explain it with some support. <p>EP5 Evaluating data and methods.</p>	<p>EP3 Collecting, recording, and presenting data</p> <ul style="list-style-type: none"> ● Begin to calculate means from data. ● Begin to record observations you want to explain. <p>EP4 Analysing patterns in data</p> <ul style="list-style-type: none"> ● Identify a pattern in data from a results table or bar chart with some support and guidance. ● Make a conclusion and begin to explain it with some support. <p>EP5 Evaluating data and methods.</p>
<p>Links to Gatsby Benchmarks:</p>	<p>Benchmark 3 – Addressing the needs of the student and * - Personal Guidance Benchmark 4 – Linking Curriculum to learning</p>	<p>Benchmark 4 – Linking Curriculum to learning</p> <p>Students to consider what skills are needed to be an electrician. Why is it</p>	<p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance</p>	<p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance</p>	<p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance</p>	<p>Benchmark 2, – Learning from the Career and Labor Market information. Benchmark 3 – Addressing the needs of the student and * - Personal Guidance</p>

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	<p>Students to consider what skills are needed to be a doctor / Otorhinolaryngology / dietician / Exercise physiologist., Fitness Centre manager. Personal trainer, Sport therapist ... lead onto looking at what skills are needed for different roles they are interested in and what qualifications.</p>	<p>important to be safe around electrical wires / equipment? To understand the importance that all live parts of electrical equipment are inaccessible during operation.</p>	<p>Students to consider what skills are needed to access the opportunities they are interested in. Research.</p>	<p>Students to consider through research what jobs exist in the field of energy procurement, generation and supply.</p>	<p>Students to consider what qualifications that are needed to access the opportunities they are interested in. Looking at careers in science</p>	<p>Benchmark 6 – Students to consider both skills and qualifications that are needed to access the opportunities they are interested in. Looking at careers in science.</p>
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