Curriculum Map

Subject: Science -

Year group: Year 8

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Content *Declarative Knowledge – 'Know What'*	**Energy:** The energy in found in fuel. Why energy changes are important. The effect on different states of matter when energy is added or removed? The process of conduction, convection and radiation. **Periodic table** How the periodic table is organised. The classification of elements based on their position in the periodic table. Use data to predict the properties of other elements in the periodic table	**Earth Chemistry:** The structure of the Earth at different depths. The changes to the surface of the Earth. The formation of different substances found in the Earth. How the process of convection causes movement in the Earth. **Metals and acids:** Explain how metals and acids react together. Describe the reactivity of different materials. Write word and formula equations for the reactions between metals and acids.	**Motion and Pressure:** Use of graphs to calculate distance and speed. Explain the causes of changes to pressure. How levers can be used to assist with movement. **Health and Lifestyle:** The components of a healthy diet. The tests that would need to be used to identify different food groups. How lifestyle can affect daily energy intake. Explain the importance of the digestive system. The impact of different drugs on the body.	**Adaptation and Inheritance:** How different organisms are adapted for survival. Defining and using examples to represent the term adaptation. How characteristics are inherited by offspring. The process of evolution and the impact on organisms. Why some organisms become extinct.	**Separation Techniques:** Compare how the particles are arranged in a pure and impure substance. Explain what happens to a substance when it dissolves. How to separate mixtures to get pure substances.	**Ecosystems:** The importance of photosynthesis in the food chain. The difference and similarities between aerobic and anaerobic respiration. The relationship between organisms in a food chain/web. **Electricity and magnetism:** The difference between charged and non-charged particles. How electricity flows through a circuit. The difference between a conductor and an insulator. The types of circuits needed for different appliances/situations.

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Skills *Procedural Knowledge – 'Know How'*	Converting between units. Choosing the correct unit to represent the data given. Comparing data to produce a conclusion Choosing the most appropriate equipment for a practical. Using data and trends to make predictions. Using known information to identify unknown substances Choose and use the most appropriate equipment to obtain a pure substance. Interpret graphs to identify melting and boiling points. Begin to rearrange equations to find an unknown value. Begin to distinguish between scalar and vector quantities. Begin to recall and choose the most appropriate formula for a calculation. Choose the most appropriate material for a product based on properties. Use diagrams and symbols to draw electric circuits Drawing food chains and webs to represent biological relationships.					
Key Questions	**Energy -** How much energy is in different foods? How is energy transferred through different materials? **Periodic table –** How are the elements arranged on the periodic table? What are the differences and similarities between the different groups in the periodic table? What are the properties of the metals/non-metals?	**Earth Chemistry** - How is the structure of the Earth different at different depths? How has the structure of the Earth changed over time? How will the structure of the Earth change in the future? How are different types of rock formed? **Metals and acids –** Are all acids dangerous? What happens when metals react with acids? What happens when acids react with metals/water? Why is this material the most suitable for its role?	**Motion and Pressure –** How do you calculate the speed of a moving object? What factors affect pressure? How can you reduce the force needed to move an object? **Health and Lifestyle –** Why do we need a digestive system? How do nutrients enter the bloodstream? How can you identify the different nutrients in a food sample? What is the impact of different drugs on the body?	**Adaptation and Inheritance –** Why are organisms different? What is the difference between environmental and genetic variation? How are natural selection and evolution connected? Why do some organisms become extinct?	**Separation techniques –** What is the difference between a compound and a mixture? What is the most appropriate equipment/method to obtain a pure substance from a mixture? Why do colours separate in chromatography? Why can you separate a solution?	**Ecosystems –** Why is photosynthesis important? How does the structure of a leaf ensure maximum photosynthesis? What happens to the energy as it transfers through a food chain? **Electricity and magnetism –** Why do you have an electric shock at different points? What factors affect the flow of electricity? What is an electromagnet? Why are electromagnets considered to be more useful that permanent magnets?

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Assessment	Diagnostic Assessment	Diagnostic Assessment Summative assessment - exam question based assessment	Diagnostic Assessment	Diagnostic Assessment Summative assessment - exam question based assessment	Diagnostic Assessment	Diagnostic Assessment Summative assessment - exam question based assessment
Literacy / Numeracy / SMSC / Character	Literacy - Comparison of conduction, convection, and radiation. Numeracy – Using the correct units and converting between units. Describing trends in the periodic table. SMSC – the importance of a balanced diet.	Literacy – describe how nutrients enter the bloodstream. Planning a practical method to separate substances. Numeracy – Calculating the mass of different substances. SMSC – evaluate the use and distribution of illegal and legal drugs.	Literacy – Describing the motion of an object using numerical information. Numeracy - calculating the speed of an object. Calculate distance and speed from a graph. Calculate pressure SMSC - using different types of reactions to treat injuries such as ice packs. Use the principle of moments to explain we need levers for certain movement. Explain the material choice based on suitability, availability, cost and impact on the environment.	SMSC – Evaluating the impact of human activity on organisms in the environment. SMSC - correcting sight & hearing defects and identifying causes of sight and ear defects. Understanding the impact of chemicals and lifestyle choices on the respiratory system.	Literacy – Explaining the process of inheritance, evolution and natural selection. Numeracy – Size and number of chromosomes inherited in different organisms. SMSC – begin to evaluate the implications of gene therapy and controlling inheritance.	Literacy – describing the relationship between organisms in a food chain/web. Literacy – Explain how electricity flows through a circuit. Evaluate the use of temporary and permanent magnets. Numeracy – Calculating the current and voltage flowing through a circiut