Science Year 8 Curriculum Maps

Year 8	Theme	Key themes	I will be able to ...	I will also be developing my investigative skills
Term 1	Biology - Relationships in an Ecosystem	Food chains Food webs Food production	Combine food chains to form a food web. Describe how a species' population changes as its predator or prey population changes. Explain effects of environmental changes and toxic materials on a species' population.	Use a model to investigate the impact of changes in a population of one organism on others in the ecosystem. Carry out investigation into the distribution of species using quadarts,
	Chemistry - Conservation of mass	chemical formulae naming compounds conservation of mass	Name compounds using their chemical formulae. Given chemical formulae, name the elements present and their relative proportions.	Describing experiments - Repeatable v reproducible Accurate v precise Predict the change in mass during the reaction between magnesium and oxygen. State conclusion and explain observations
	Physics - Energy Transfers and Changes in Systems	Machines Levers Heat Transfers Insulators	Explain observations about changing temperature in terms of energy transfer. Explain how a method of thermal insulation works in terms of conduction, convection and radiation.	Use moments apparatus to investigate clockwise and anticlockwise moments. Use levers to make a snapping crocodile and waving hand. Investigate insulation and thermal equilibrium and plot cooling curves

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Term 2	Biology - Nutrition and digestion	Diet and food Digestive system Plants Photosynthesis Drugs	State the components of a healthy balanced diet. Describe the function of each required part, i.e. carbohydrates for energy. Calculate energy requirements in food. Describe what happens if you do not eat a balanced diet – link this to diseases like obesity. State the digestive organs and locate them on a diagram. Describe the function of the digestive organs. Explain how certain drugs, alcohol and caffeine and smoking can cause healthy effects in humans. State that plants make their own food by photosynthesis and recall the photosynthesis equation.	Carry out calculations using food labels to determine the correct intake of food for certain individuals. Produce an example of a healthy balanced meal. Model the digestive system and how food passes from mouth to anus.
	Chemistry - Chemistry of the Earth	Structure of the Earth Types of Rock Rock Cycle Sustainability Recycling	Explain why a rock has a particular property based on how it was formed. Identify the causes of weathering and erosion and describe how they occur. Construct a labelled diagram to identify the processes of the rock cycle. Explain why recycling of some materials is particularly important.	Model the processes that are responsible for rock formation and link these to the rock features.

			Describe how Earth's resources are turned into useful materials or recycled.	
	Physics - Sound Waves	Longitudinal waves Sound waves Reflection Ultrasound	Explain observations where sound is reflected, transmitted or absorbed by different media. Describe the amplitude and frequency of a wave from a diagram or oscilloscope picture. Use drawings of waves to describe how sound waves change with volume or pitch. Explain observations of how sound travels using the idea of a longitudinal wave.	Relate changes in the shape of an oscilloscope trace to changes in pitch and volume (amplitude)
Term 3	Biology - Gas exchange systems	Gas Exchange Respiration	Explain how the parts of the gas exchange system are adapted to their function. Explain observations about changes to breathing rate and volume. Explain how changes in volume and pressure inside the chest move gases in and out of the lungs Use word equations to describe aerobic and anaerobic respiration. Explain how specific activities involve aerobic or anaerobic respiration.	Evaluate how well a model represents key features of the respiratory system. Investigate how light intensity effects the rate of photosynthesis. Investigation how heart rate changed during exercise.
	Chemistry - The Periodic Table	The Periodic Table Properties of metals and non-metals Periodic Patterns	Use data to describe a trend in physical properties. Describe the reaction of an unfamiliar Group 1 element. Use data showing a pattern in physical properties to estimate a missing value for an element.	Sort elements using chemical data and relate this to their position in the periodic table

			Use observations of a pattern in chemical reactions to predict the behaviour of an element in a group.	
	Physics - Matter	Density Brownian motion Diffusion	Explain reversible changes when a substance changes state. Use density to explain why ice floats on water. Explain the observation of Brownian motion and how this links to the particle model of matter. Recall the names of the changes of state Explain how diffusion in fluids is driven by differences in concentration.	Carry out an investigation into the density of regular and irregular objects.