

Year 9	Biology	Chemistry	Physics	Working scientifically
<b>Emerging</b>	I can: recognise the equation for photosynthesis and respiration. Know that we are all different.	I can: say if a chemical reaction has taken place and carry out practical with some assistance. Describe what happens when substances are heated or cooled. Sort materials into groups according to their properties. State that temperature, catalyst, surface area and concentration all affect rate of reaction.	I can: recognise renewable and non renewable energy resources. State that all energy comes from the sun.	I can design a fair test and make predictions and conclusions. I can say what my data shows
<b>Developing</b>	I can: give examples of genetic and environmental variation. Say how gases enter and leave a leaf.	I can: describe how we know a chemical reaction has happened and identify the reactants and products in a word equation.	I can: identify a variety of energy resources and know the difference between renewable and non renewable sources. Recall that energy comes from the sun.	I can use science to explain my predictions and conclusions. I can interpret my data and begin to explain it using science.
<b>Securing</b>	I know: that living things show variation and am able to explain what causes it. I know where genes are found in the cell and genetic information is carried in the form of genes and chromosomes. I understand that photosynthesis is a chemical reaction and the difference between aerobic and anaerobic respiration.	I can: write the chemical names for simple compounds, write symbol equation with some help. Identify reactants and products in a reaction. Explain combustion.	I understand the relationship between applied force, the area it acts on and pressure. Can use the principle of moment in practical situations. Know that global energy resources are limited and say why energy should be used efficiently. I know the law of conservation of energy.	I can present my data clearly using lines of best fit on graphs. I can explain my conclusions using evidence. I can apply my scientific knowledge to my investigations.
<b>Advancing</b>	I can: write a word equation for photosynthesis. List how a leaf is adapted for photosynthesis. Understand that genetic information is carried in the form of chromosomes and genes. I know the difference between photosynthesis and chemosynthesis. Describe how the characteristics of organisms are influenced by genes and the environment. Explain evolution by natural selection. Explain bioaccumulation in food chains. Describe how chemicals are cycled in the environment.	I can: explain which chemical reactions are useful and thermal decomposition. Compare chemical reactions to physical changes. Write word equations for reactions. Explain oxidation. Describe some uses of neutralisation reactions. Relate the properties and uses of everyday materials. Write a symbol equation for a reaction. Explain changes of state and dissolving.	I can: compare weight and mass. Use the principle of moments in practical situations. Understand that global resources are limited and explain why energy resources should be used efficiently.	I can plan (with a little guidance) investigations identifying key factors that need to be considered. I can present my data clearly and concisely using graphs with lines of best fit. I can apply my knowledge and understanding to a range of contexts.
<b>Mastering</b>	I can: label a diagram showing the cross section of a leaf. I know the difference between photosynthesis and chemosynthesis. Explain how the characteristics of organisms are influenced by genes and the environment. Explain how evolution accounts for biodiversity. Explain how organisms interact and are interdependent in the ecosystem. Explain the effects of anaerobic respiration on the body during and after exercise.	I can: use a pattern to predict products of decomposition, explain the extraction of iron and reactions producing salts, explain exothermic and endothermic. Use the reactivity series to make predictions about reactions of metals. Describe the physical and chemical properties of metals and non-metals and their compounds. Use my knowledge of patterns in chemical reactions to suggest how substances such as salts could be made. Write a balanced symbol equation for a reaction. Explain the atomic structure of the first 20 elements	I can: calculate weight using the correct equation and describe situations that are in equilibrium. Relate energy to "work done". Evaluate physical phenomena from a different perspective, i.e. energy transfers and conservation of energy	Unaided I can prepare precise plans for an investigation. I can decide on the observations and measurements. I can set up and use a range of apparatus with precision and skill.