SCIENCE FRAMEWORK – YEAR 8

THE LONG EATON SCHOOL

Grade	D/S/E	Knowledge and Understanding	Application of knowledge and understanding	Analyse, Interpret and evaluate Scientific ideas to make judgements and conclusions
9	E	Can recall and correctly use complex scientific terms e.g. Bio – natural selection Chem - ph Phys – potential difference, moment	Can apply knowledge and understanding of science in abstract contexts, e.g. energy, particles, cells. Can produce highly detailed descriptions and explanations. Can recall, rearrange and use formulae to carry out calculations. Bio – I can describe how photosynthesis works and explain why it is important to a food chain. Chem - explain how the position of an element can be used to suggest properties of elements Phys – Can calculate pressure and explain its effects.	Can use complex data and evidence to draw conclusions and has ideas about how to improve on investigations. Can design tables and graphs and link evidence to new scientific theories. Bio – Can carry out initial food tests and then suggest how to improve the test. Can link test results to theory about balanced diet. Chem - Empirical formula via practical results Phys – Can measure angles of reflection / refraction
8		Can recall and correctly use complex scientific terms e.g. Bio – respiration Chem - balanced equations that include state symbols Phys – Gravity, refraction, echo	Can apply knowledge and understanding of science in specific contexts, e.g. energy, particles, cells. Can produce detailed descriptions and explanations. Can recall and use formulae to carry out calculations. Bio – I can describe photosynthesis and explain why it is important to a food chain. Chem - explain the relationship between solutes, solvents, and solutions Phys - Can calculate resistance in a circuit	Can use complex data and evidence to draw conclusions and suggest appropriate ideas about how to improve on investigations. Can design tables and graphs appropriately, with guidance. Bio – Can carry out initial food tests and then suggest how to improve the test. Chem - Apply group 1/7 reactivity practical's Phys – Can interpret oscilloscope readings to describe a sound wave
7		Can recall and correctly use complex scientific terms e.g. Bio – vacuole Chem - combustion reactions Phys – Balanced / unbalanced, orbits	Can apply knowledge and understanding of science, e.g. energy, particles, cells. Can produce detailed descriptions and simple explanations. Can use formulae to carry out calculations. Bio – I can describe photosynthesis and explain why it is important to plants. Chem - what happens to particles in a chemical reaction Phys – can describe the events depicted in d-t graphs	Can use data and evidence to draw conclusions and has ideas about how to improve on investigations. Can design tables and graphs appropriately. Bio – Can use results from food tests to identify which food is 'healthier'. Chem - Calorimetry of fuels Phys – Can use data to demonstrate moments in balance
6		Can recall and correctly use complex scientific terms e.g. Bio – mitochondria Chem - particle model Phys – reflection, kinetic	Can apply knowledge and understanding of science in general contexts, e.g. energy, particles, cells. Can produce detailed descriptions and simple explanations. Can select and use formulae to carry out calculations. Bio – I can describe and explain what contributes and a healthy and diet and why it is important. Chem - write and interpret chemical formulae Phys – Can describe energy transfers of different devices	Can use data and evidence to draw conclusions and has ideas about how to improve on investigations. Can design tables and graphs appropriately, with guidance. Bio – Can carry out food tests to identify nutrients and describe a positive result. Chem – Distillation Phys – Can make measurements of voltage and current from circuits
5		Can recall and use key scientific terms in the correct context e.g. Bio – cell wall Chem - saturated solution Phys - Friction , weight	Can describe scientific processes and is able to offer simple explanations, with guidance. Is able to select the correct units when measuring quantities. Can select and use formulae to carry out calculations. Bio - I can describe photosynthesis and give the word equation.	Uses data and evidence to draw conclusions Uses tables and graphs to identify patterns and trends. Bio - Can use a microscope and identify key parts. Can make and label simple drawings of observations. Chem - Metal extraction

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			Chem - characteristics of exothermic and endothermic changes Phys – Can calculate speeds of different objects	Phys – Can build simple circuits
4	**S**	Can recall and use key scientific terms e.g. Bio - stomach Chem – evaporation Phys – Energy, Forces,	Can describe scientific processes and is able to offer simple explanations, with guidance. Is able to select the correct units when measuring quantities. Bio – I can describe simple diffusion and explain why it happens. Chem - explain why global warming happens Phys – can describe the effect of changing current in a circuit	Uses simple data and evidence to draw conclusions Uses tables and graphs to identify patterns and trends. Bio – Can use a microscope and identify key parts. Can make simple drawings of observations. Chem - Trends in metal + acid reactions Phys – Can set up experiments to show reflection / refraction
3		Can recall and use key scientific terms e.g. Bio – cell Chem – neutralisation Phys – Energy, Forces, waves	Can describe scientific processes. Is able to select the correct units when measuring quantities. Bio – I can describe simple diffusion Chem - how to filter a mixture Phys – Can describe effect of balanced / unbalanced forces	Uses simple data and evidence to draw conclusions with prompts. Uses tables and graphs to identify patterns and trends. Bio – Can use a microscope and identify key parts. Chem - Displacement practical's Phys – Can identify planet positions from simple data
2	**D**	Can correctly use key words from a list to complete sentences / label diagrams. Bio – nucleus, stomach Chem - diffusion. Phys –eye, stars	Can identify and describe a simple scientific process, e.g. Bio – identify diffusion taking place. Chem - what happens in endothermic and exothermic changes? Phys – can describe simple orbiting systems	Can follow simple instructions. Can select correct equipment. Can fill in a results table. Able to identify simple patterns. Bio – Can use a microscope. Chem - Use universal indictor to find pH Phys – uses a newton meter to measure the size of forces
1		Can correctly use simple key words from a list to complete sentences / label diagrams. Bio – cell Chem - chemical reaction Phys – Planets, Moons, heat	Can identify a scientific process, e.g. Bio – identify that substances move into or out of cells Chem - decomposition reaction Phys – identifies simple energy changes	Can follow simple instructions. Can select correct equipment from a list. Can fill in a results table. Able to identify a simple pattern from a table or graph. Bio – Can use a microscope with instructions. Chem - Use the correct size measuring cylinder Phys – uses a thermometer to measure temperature