Levenshulme High School – Curriculum Map – Science

		Term 1		Term 2		Term 3	
	No. of Weeks	8	7	6	5	5	7
Year 9 Step up to KS4 (KS3 to KS4 Transition)	**Topic Title and NC link**	**Inheritance, Plants and the Reactivity Series**	**Speed and Electricity**	**B1: Cell level systems**	**B2: Scaling up**	**C1: Particles**	**C2: Elements, compounds and mixtures**
	Big Ideas	**Genetic information is passed down from one generation of organisms to another.**	**Changing the movement of an object requires a net force to be acting on it & The total amount of energy in the Universe is always the same but can be transferred from one energy store to another.**				
	Pupils should know…	• Genetic information is passed down from one generation to another • Organisms are organised on a cellular basis • All matter is made up of atoms. • The behaviour and structural arrangement of atoms explains the properties of different materials • Understanding chemical reactions	• Object can affect other objects at a distance • Changing the movement of an object requires a net force to be acting on it • The total amount of energy in the Universe is always the same, but energy can be transformed • The knowledge produced by Science is used in technologies to create products to serve human ends	• B1.1 Cell structures • B1.2 What happens in cells (and what do cells need)? • B1.3 Respiration • B1.4 Photosynthesis	• B2.1 Supplying the cell • B2.2 The challenges of size	• C1.1 The particle model • C1.2 Atomic structure	• C2.1 Purity and separating mixtures • C2.2 Bonding • C2.3 Properties of materials
	Pupils should be able to do…	• Describe why we have certain characteristics in terms of genes. • State which characteristics will show based on the combination of dominant and recessive genes. • Describe and explain photosynthesis and respiration. • Evaluate data on impacts to the environment	• Describe and calculate what speed and acceleration are • Describe how a force can change an object • Develop the skill of constructing and interpreting distance/time and speed/time graphs • Draw and construct series and parallel circuits and calculate resistance and the applications of electricity	**AO1 -Demonstrate knowledge and understanding of:** • scientific ideas • Scientific techniques and procedures. **AO2- Apply knowledge and understanding of:** • scientific ideas • Scientific enquiry, techniques and procedures. **AO3 - Analyse information and ideas to:** • Interpret and evaluate • make judgements and draw conclusions • Develop and improve experimental procedures.	**AO1 -Demonstrate knowledge and understanding of:** • scientific ideas • Scientific techniques and procedures. **AO2- Apply knowledge and understanding of:** • scientific ideas • Scientific enquiry, techniques and procedures. **AO3 - Analyse information and ideas to:** • Interpret and evaluate • make judgements and draw conclusions • Develop and improve experimental procedures.	**AO1 -Demonstrate knowledge and understanding of:** • scientific ideas • Scientific techniques and procedures. **AO2- Apply knowledge and understanding of:** • scientific ideas • Scientific enquiry, techniques and procedures. **AO3 - Analyse information and ideas to:** • Interpret and evaluate • make judgements and draw conclusions • Develop and improve experimental procedures.	**AO1 -Demonstrate knowledge and understanding of:** • scientific ideas • Scientific techniques and procedures. **AO2- Apply knowledge and understanding of:** • scientific ideas • Scientific enquiry, techniques and procedures. **AO3 - Analyse information and ideas to:** • Interpret and evaluate • make judgements and draw conclusions • Develop and improve experimental procedures.

	Pupils should have remembered/ be familiar …	• The requirements of plants to grow • That some reactions result in the formation of new materials	• Associate the brightness of a lamp or with the number and voltage of cells used in the circuit • Compare and give reasons for variations in how components function use symbols when representing a simple circuit in a diagram.	• Cells as the fundamental unit of living organisms. • The use of light microscopes to view cells. • Sub-cellular structures. • The similarities and differences between plant and animal cells. • Simple understanding of the double helix model of DNA. • The idea of enzymes as biological catalysts. • That respiration involves the breakdown of organic molecules to enable all the other chemical processes necessary for life. • The word equation for respiration. • They should have an understanding that plants make carbohydrates in their leaves by photosynthesis, • The word equation for photosynthesis.	• The role of diffusion in the movement of materials in and between cells. • The role of diffusion in the movement of materials in and between cells. They should also be familiar with the human gaseous exchange system.	• The different states of matter and their properties. • Changes of state in terms of the particle model. • The particle models.	• The concept of pure substances. • Simple separation techniques of mixtures. • The identification of pure substances in terms of melting point, boiling point and chromatography • The simple (Dalton) atomic model. • The difference between an atom, element and compound.