

Science: Key Stage 3 Grade Descriptors **Year 7**

Y7	Scientific attitudes	Experimental skills and Investigations	Measurement	Analysis and evaluation of results	Subject Knowledge
Emerging	<ul style="list-style-type: none"> I can understand scientific processes. Such as, naming the different states of matter. I can state how cells group together to form a tissue. 	<ul style="list-style-type: none"> State what may happen in an investigation, such as how to separate a mixture of sand and water. Follow guidance on controlling risk. I can follow the steps of an investigation to observe organelles in a cell. 	<ul style="list-style-type: none"> I can record observations in a table. Such as, the time taken for a car to travel down a ramp at different heights. I can present data in a bar chart or histogram. I can identify the SI unit in a table when provided. 	<ul style="list-style-type: none"> I can state the change that has been observed in results. Such as, universal indicator turning red for an acid and purple for an alkali. 	10 Big Ideas: <ol style="list-style-type: none"> Forces <ul style="list-style-type: none"> Speed Gravity Electromagnets <ul style="list-style-type: none"> Potential difference and resistance Current
Developing	<ul style="list-style-type: none"> I can understand scientific ideas and processes. Such as, recalling the names of different planets in the solar system and describing how to use a microscope. 	<ul style="list-style-type: none"> With help, I can identify independent, dependent variables. I can choose the correct simple predictions. I can follow a method safely to investigate the components in a cell and calculate magnification. 	<ul style="list-style-type: none"> I can take accurate measurements. Such as, the angle light is reflected off a mirror. I can complete a graph with results partially plotted. I can use the SI unit when provided. 	<ul style="list-style-type: none"> I can choose the correct conclusion from a choice. Such as, the product formed when potassium reacts with water. I can choose simple positive, and negatives of an investigation given a choice. I can use my mathematical skills to carry out various functions, such as calculating mean, median and mode. 	<ol style="list-style-type: none"> Energy <ul style="list-style-type: none"> Energy costs Energy transfer Waves <ul style="list-style-type: none"> Sound Light Matter <ul style="list-style-type: none"> Particle Model Separating materials
Meeting	<ul style="list-style-type: none"> I can understand scientific ideas and processes. Such as, describing how particles are arranged in different states of matter and how to calculate the energy costs. 	<ul style="list-style-type: none"> I can identify independent, dependent and control variables. I can make simple predictions. I can follow a method safely. 	<ul style="list-style-type: none"> I can take accurate measurements. I can plot results on a graph. I can write SI units in the correct format. 	<ul style="list-style-type: none"> I can make simple conclusions from a graph. Such as, whether an object is moving or stationary. I can give simple positive and negatives of an investigation. I can use my mathematical skills to carry out various functions such as calculating mean, median and mode. 	<ol style="list-style-type: none"> Reactions <ul style="list-style-type: none"> Acids and alkalis Metals and non-metals Earth <ul style="list-style-type: none"> Earth structure Universe Organisms <ul style="list-style-type: none"> Movement Cells
Exceeding	<ul style="list-style-type: none"> I have excellent knowledge and understanding of several scientific ideas and processes. Such as, explaining how gravity differs on different planets and how to calculate the potential difference in a circuit. 	<ul style="list-style-type: none"> I can write a hypothesis for an experiment from the variables I have identified. Such as, keeping the length of a ramp the same whilst changing the height to determine how it affects the speed. I can write a method for an experiment such as separating a mixture of sand and water. 	<ul style="list-style-type: none"> I can collect my results in a suitable table. I can plot my data as a graph. I can use my mathematical skills to substitute numbers into an equation. I can state what SI units are. 	<ul style="list-style-type: none"> I can make several conclusions from my experiment and support with data. Such as, how light is reflected off a mirror. I can evaluate the validity of a method. 	<ol style="list-style-type: none"> Ecosystems <ul style="list-style-type: none"> Interdependence Plant reproduction Genes <ul style="list-style-type: none"> Variation Human reproduction

Science: Key Stage 3 Grade Descriptors **Year 8**

Y8	Scientific attitudes	Experimental skills and Investigations	Measurement	Analysis and evaluation of results	Subject Knowledge
Emerging	<ul style="list-style-type: none"> I can understand scientific ideas and processes. Such as, stating how characteristic, for example eye colour, are inherited from parents. 	<ul style="list-style-type: none"> I can identify independent, dependent variables, when options are provided. Such as, changing the number of coils and measuring the strength of the electromagnet. I can choose the correct prediction. I can follow a method safely to change the strength of an electromagnet. 	<ul style="list-style-type: none"> I can take accurate measurements. Such as, the pulse before and after exercise. I can draw a line of best fit on a graph. I can use the SI unit when provided. 	<ul style="list-style-type: none"> I can choose the correct conclusion from a choice. I can choose simple positive, and negatives of an investigation given a choice. I can use my mathematical skills to carry out various functions, such as calculating mean, median and mode. 	<p>10 Big Ideas:</p> <ol style="list-style-type: none"> Forces <ul style="list-style-type: none"> Contact forces Pressure Electromagnets <ul style="list-style-type: none"> Magnetism Electromagnets Energy <ul style="list-style-type: none"> Work Heating and cooling Waves <ul style="list-style-type: none"> Wave effects Wave properties Matter <ul style="list-style-type: none"> Elements Periodic Table Reactions <ul style="list-style-type: none"> Types of reaction Chemical energy Earth <ul style="list-style-type: none"> Climate Earth resources Organisms <ul style="list-style-type: none"> Breathing Digestion Ecosystems <ul style="list-style-type: none"> Respiration Photosynthesis Genes <ul style="list-style-type: none"> Evolution Inheritance
Developing	<ul style="list-style-type: none"> I can understand scientific ideas and processes. Such as, describing the difference between aerobic and anaerobic respiration. 	<ul style="list-style-type: none"> I can identify independent, dependent and control variables. Such as, changing the distance light is from a plant to affect the rate of photosynthesis. I can make simple predictions. I can follow a method safely to determine the rate of photosynthesis. 	<ul style="list-style-type: none"> I can take accurate measurements. Such as, the number of bubbles released from a plant during photosynthesis. I can draw a line of best fit on a graph. I can write SI units in the correct format. 	<ul style="list-style-type: none"> I can make simple conclusions from a graph. Such as, whether the rate of photosynthesis is increasing. I can give simple positive and negatives of an investigation. I can use my mathematical skills to carry out various functions such as calculating mean, median and mode. 	
Meeting	<ul style="list-style-type: none"> I have knowledge and understanding of several scientific ideas and processes. Such as, recalling how to change the strength of an electromagnet. 	<ul style="list-style-type: none"> I can write a hypothesis for an experiment from the variables I have identified. Such as, how sunlight affects the rate of photosynthesis. With support, I can write a method for an experiment. Such as, how to change the rate of photosynthesis. 	<ul style="list-style-type: none"> I can collect my results in a suitable table. I can plot my data as a graph. I can use my mathematical skills to substitute numbers into an equation. I can state what SI units are. 	<ul style="list-style-type: none"> I can make several conclusions from my experiment and support with data. Such as, what happens to the rate of respiration during exercise. I can evaluate the validity of a method. 	
Exceeding	<ul style="list-style-type: none"> I can apply my knowledge and understanding of scientific ideas and processes. Such as, explaining how waves in a ripple tank can represent how sound waves travel. 	<ul style="list-style-type: none"> I can formulate a hypothesis from the independent, dependent and control variables I have identified. Such as, changing the number of coils on an electromagnet to change the strength of an electromagnet. I can write a clear and detailed method for an experiment. Such as, how to change the strength of an electromagnet. 	<ul style="list-style-type: none"> I can collect valid and reliable data. Such as, the temperature of stearic acid as it cools. I can design my own suitable results table. I can identify the correct SI units. 	<ul style="list-style-type: none"> I can deal with anomalous results from my experiment before processing the data. I can plot my data on a suitable graph, identifying a suitable scale. I can make several conclusions from my data and suggest improvement to my method. Such as, ensuring a timer is used to take results every minute. I can use my mathematical skills to carry out a range of functions such as percentage change. 	