Ursuline Academy Ilford

Science (Year 8)

	Initial – *a student who is still initial will be able to meet some of the following with support:*	**Emerging** – *a student whose understanding is still emerging will be able to:*	**Developing** – *a student whose understanding is developing will also be able to:*	**Secure** – a *student whose understanding is secure will also be able to:*	**Advanced** – *a student whose understanding is advanced will be able to do some of the following:*	**Mastered** – *a student who has mastered their understanding will be able to do all of the following consistently:*
Knowledge	• demonstrate some relevant scientific knowledge and understanding with scaffolding and guidance in familiar contexts	• demonstrate some relevant scientific knowledge and understanding. These are mostly confined to familiar contexts	• demonstrate mostly accurate and appropriate knowledge and understanding and apply these mostly correctly to familiar contexts. • begin to apply them to unfamiliar contexts with guidance and scaffolding.	• demonstrate mostly accurate and appropriate knowledge and understanding and apply these mostly correctly to familiar and unfamiliar contexts.	• demonstrate relevant and comprehensive knowledge and understanding and apply these correctly to familiar situations but may be less accurate in unfamiliar contexts.	• demonstrate relevant and comprehensive knowledge and understanding and apply these correctly to both familiar and unfamiliar contexts using accurate scientific terminology

Application of knowledge	• answer questions which ask to add / label / give / state / name • use scientific Tier 1 keywords correctly both through oracy and literacy • use some Tier 3 words that refer to equipment e.g beaker, microscope • use some correct scientific Tier 1 descriptors in my work such as heating, freezing both through oracy and literacy • give brief responses with limited detail	• answer questions which ask me to complete/ give reasons/ identify/ measure • use scientific Tier 2 keywords correctly both through oracy and literacy such as chart, comment • use the Tier 3 words that refer to equipment e.g beaker, microscope • use some correct scientific Tier 2 descriptors in my work such as both through oracy and literacy such as weighing, • give limited responses starting to use full sentences. • start to see where they are going wrong in answers	• answer questions which ask me to compare/ describe/ draw/ justify • use some scientific Tier 3 keywords correctly both through oracy and literacy • use the more difficult Tier 2 scientific terms such as estimate and bias some may have alternate uses in everyday language e.g. compound • use some correct scientific descriptors in my work such as increases, decreases both through oracy and literacy • use full sentences in answers and be able to identify errors	• answer questions which ask me to calculate/ compare and contrast/ estimate/ plot/ show that • use some scientific Tier 3 keywords correctly both through oracy and literacy • use some correct scientific descriptors in my work such as increases, decreases both through oracy and literacy • start to extend my answers and recognise errors in my work and others	• answer questions which ask me to assess/ comment on/ explain/ predict/ sketch • use scientific Tier 3 keywords correctly both through oracy and literacy when reminded • use correct scientific descriptors in my work such as increases, decreases both through oracy and literacy when reminded • extend discussions on content and start linking ideas in new content to prior content • recognise areas of misconception	• I can answer question which ask me to deduce/ devise/ discuss/ evaluate • I can use scientific Tier 3 keywords correctly both through oracy and literacy without being prompted e.g **chloroplast**, **respire**. I can use words which have an alternate meaning in the outside world such as **work** correctly. • use correct scientific descriptors in my work such as increases, decreases both through oracy and literacy without being prompted • elaborate on information and make connections between new knowledge and prior knowledge • recognise and correct errors in my work and others

Experimental skills and investigation	• choose a hypothesis from a list • state what to record in an experiment (e.g. dependent variable) • list the equipment needed to complete an experiment • attempt to write a method	• state a hypothesis with guidance • state the things that need to be kept the same to make my test fair (controlled variables). • independently list most of equipment I need to use. • spot a potential hazard	• independently write a basic hypothesis • describe the pattern I expect to see in experimental results • identify all the variables for my experiment (dependent, independent, some control) independently • list all the equipment I need to use • write a followable method - some points may be missing but would still give a valid outcome • spot most hazards	• independently write a hypothesis and describe why I would expect to see this • give a scientific reason for the pattern I expect to see in my results • identify the independent, dependent and some control variables and explain how I will keep the controlled variables in my experiment the same • state the purpose of measuring / specialised equipment in my investigation • write a method that can be followed by someone else - measurements will be included. • spot potential hazards and say how to reduce them	• independently write a hypothesis and begin to explain why we would expect to see this in results • identify the independent and dependent variables and several control variables • explain why my controlled variables need to be kept the same. • justify why to use one piece of equipment over another • write a repeatable step-by-step method - quantities and how to measure the dependent variable will be included, correct resolution equipment will be included	• independently write a hypothesis and explain why we would expect to see this in results • identify variables which cannot be controlled in an experiment and explain how we will minimise their impact • justify using the chosen equipment with a particular resolution for an investigation • write a repeatable step-by-step method - quantities, correct names for equipment and how to measure the dependent variable will be included

Numeracy including graphs and results	• record some results in a table • attempt to plot points on a graph	• complete a table of results given to me • calculate the mean for a set of results with a reminder of how to carry out the calculation • place the plots on a line graph or draw a bar chart when the axes are already drawn	• independently draw a results table which has clear headings for each of the columns • independently calculate the mean for a set of results. • with guidance, plot a line graph • draw a simple bar chart It should be labelled • convert basic units e.g cm to m	• independently draw an easy to interpret results table which has clear headings for each column and correct units • calculate the mean for a set of results - rounding the answer and taking anomalies into account • recognise when to draw a line graph or bar chart and plot an accurate, fully labelled graph - a line / curve of best fit will be drawn with help • use equations when given • with guidance, use significant figures and orders of magnitude	• independently draw a clear, easy to interpret results table in which all of my data is rounded to the same level of precision • independently calculate the mean for a set of results that is rounded correctly • recognise when to draw a line/ curve of best fit on an accurately plotted, fully labelled, suitable graph • begin to use significant figures and orders of magnitude • convert units when prompted. • use equations and begin to rearrange	• independently draw a clear, easy to interpret results table in which all of the data is recorded to a consistent and appropriate level of precision • independently calculate the mean for a set of results ensuring any anomalies are considered and that the value is rounded to an appropriate level of precision • independently add levels of uncertainty to an appropriate line / curve of best fit on an accurately plotted, fully labelled graph. • independently use significant figures and orders of magnitude • realise when to convert units without prompting • use equations and rearrange them before use

Conclusion and evaluation	• state the trend I can see in my results identify an anomalous (odd) result • state if my data is of good quality and start to give a reason for my decision	• state the trend I can see in my results • identify an anomalous (odd) result. • state if data is of good quality and give a reason for the decision	• independently link the variables to identify the trend in results and use data to support it • suggest why an anomalous result may have occurred • explain scientifically if data is of good quality or not, using terms such as accurate, precise, repeatable and reproducible.	• use experimental data to support the trend and explain it using relevant scientific knowledge • suggest an improvement which would reduce anomalies or improve the quality of the data. • use data / evidence to support why the data is of good quality using terms such as accurate, precise, and reproducible.	• with guidance, interpret data or a line / curve of best fit to state the proportionality of the variables • explain why a suggested improvement would reduce anomalies or improve the quality of the data • with guidance, interpret range / error bars on a line graph to suggest the quality of the data in terms of repeatability.	• independently interpret data or a line /curve of best fit to state the proportionality of the variables, and link this to relevant scientific knowledge • suggest if anomalous results have been caused by a random or systematic error • independently interpret range / error bars on a line graph to suggest the quality of the data in terms of repeatability