



GRADE		DESCRIPTION
9	<p data-bbox="297 368 495 560">Mastering</p> <p data-bbox="297 560 495 727">Secure</p> <p data-bbox="297 727 495 919">Developing</p>	<p data-bbox="539 376 2145 1150"><b>LEVEL 9</b> <b>Pupils will achieve 85%+ in a GCSE exam when converted from a raw score to a UMS score.</b> HSW – Level 9/Exceptional performance Pupils recognise that different approaches are required to investigate different kinds of scientific questions, and use scientific knowledge and understanding to select appropriate strategies. They readily identify hazards, seek appropriate risk assessment information and advice, select that which is relevant and, in consultation with their teacher, adjust practice as required. They make records of relevant observations and comparisons, clearly identifying points of particular significance. They decide the level of precision needed for measurements and collect data that satisfy these requirements. They analyse findings to interpret trends and patterns and draw conclusions from their evidence. They make effective use of a range of quantitative relationships between variables in calculations or when using data to support evidence. They communicate findings and arguments, showing their awareness of the degree of uncertainty and a range of alternative views. They evaluate evidence critically and give reasoned accounts of how they could collect additional evidence Level 9/Exceptional performance biologists demonstrate both breadth and depth of knowledge and understanding of organisms, their behaviour and the environment. They apply this effectively in their descriptions and explanations, identifying links and patterns within and between topics, for example linking internal and external cell structures to life processes. They interpret, evaluate and synthesise data, from a range of sources in a range of contexts, and apply their understanding to a wide range of biological systems. They demonstrate an understanding of how scientific knowledge and understanding changes, building on processes such as questioning, investigating and evidence gathering, for example in the study of global climate change. They describe and explain the importance of a wide range of applications and implications of science in familiar and unfamiliar contexts, such as addressing problems arising from global climate change.</p>



8	<p>Mastering</p> <p>Secure</p> <p>Developing</p>	<p><b>LEVEL 8</b> <b>Pupils will achieve 85%+ in a GCSE exam when converted from a raw score to a UMS score.</b></p> <p>HSW - Level 8 Pupils recognise that different strategies are required to investigate different kinds of scientific questions, and use scientific knowledge and understanding to select an appropriate strategy. In consultation with their teacher they adapt their approach to practical work to control risk. They record data that are relevant and sufficiently detailed, and choose methods that will obtain these data with the precision and reliability needed. They analyse data and begin to explain, and allow for, anomalies. They carry out multi-step calculations and use compound measures, such as speed, appropriately. They communicate findings and arguments, showing awareness of a range of views. They evaluate evidence critically and suggest how inadequacies can be remedied.</p> <p>Level 8 Biologists demonstrate extensive knowledge and understanding related to organisms, their behaviour and the environment. They use and apply this effectively in their descriptions and explanations, identifying links between topics, for example relating cellular structure of organs to their associated life processes. They interpret, evaluate and synthesise data from a range of sources and in a range of contexts, for example environmental data from fieldwork. They show they understand the relationship between evidence and scientific ideas, and why scientific ideas may need to be changed, for example the short-term and long-term effects of environmental change on ecosystems. They describe and explain the importance of a wide range of applications and implications of science, such as relating photosynthesis and respiration to changes in the atmosphere and growth of crops. Pupils can convert numerical values in one unit of measurement into a different unit.</p>
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7	<p>Mastering</p> <p>Secure</p> <p>Developing</p>	<p><b>LEVEL 7</b> <b>Pupils will achieve 80%+ in a GCSE exam when converted from a raw score to a UMS score.</b></p> <p>HSW - Level 7 Pupils plan appropriate approaches and procedures, by synthesising information from a range of sources and identifying key factors in complex contexts and in which variables cannot readily be controlled. They select and Source: <a href="http://curriculum.qcda.gov.uk/key-stages-3-and-4/subjects/index.aspx">http://curriculum.qcda.gov.uk/key-stages-3-and-4/subjects/index.aspx</a> The names of the attainment targets and level descriptions are drawn from the 2007 secondary National Curriculum handbook for levels 4- 8 and exceptional performance. For levels 1-3, they are drawn from the current primary National Curriculum (1999). KS3 &amp; KS4 SUBJECT LEVEL DESCRIPTORS 2010-11 use methods to obtain reliable data, including making systematic observations and measurements with precision, using a range of apparatus. They recognise the need for a risk assessment and consult appropriate sources of information, which they follow. They record data in graphs, using lines of best fit. They analyse findings to draw conclusions that are consistent with the evidence and use scientific knowledge and understanding to explain these conclusions and identify possible limitations in primary and secondary data. They use quantitative relationships between variables. They communicate effectively, using a wide range of scientific and technical conventions and terminology, including symbols and flow diagrams. They begin to consider whether the data they have collected are sufficient for the conclusions they have drawn.</p> <p>Level 7 Biologists describe a wide range of processes and phenomena related to organisms, their behaviour and the environment, using abstract ideas and appropriate terminology and sequencing a number of points, for example respiration and photosynthesis, or pyramids of biomass. They make links between different areas of science in their explanations. They apply and use more abstract knowledge and understanding, in a range of contexts, such as inherited and environmental variation. They explain how evidence supports some accepted scientific ideas, such as the structure and function of cells. They explain, using abstract ideas where appropriate, the importance of some applications and implications of science, such as the uses of cells in stem cell research. Pupils can differentiate between resolution and magnification and compare light and electron microscopes. Pupils can explain simple diffusion and osmosis.</p>
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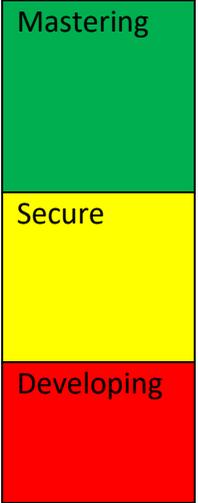
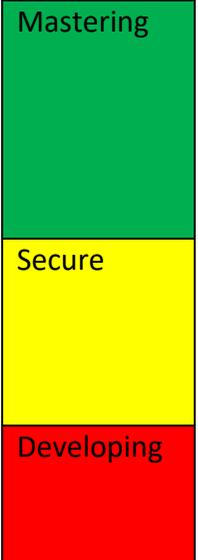


6	<p>Mastering</p> <p>Secure</p> <p>Developing</p>	<p><b>LEVEL 6</b> <b>Pupils will achieve 75%+ in a GCSE exam when converted from a raw score to a UMS score.</b></p> <p>HSW - Level 6 Pupils identify an appropriate approach in investigatory work, selecting and using sources of information, scientific knowledge and understanding. They select and use methods to collect adequate data for the task, measuring with precision, using instruments with fine scale divisions, and identify the need to repeat measurements and observations. They recognise a range of familiar risks and take action to control them. They record data and features effectively, choosing scales for graphs and diagrams. They analyse findings to draw conclusions that are consistent with the evidence and use scientific knowledge and understanding to explain them and account for any inconsistencies in the evidence. They manipulate numerical data to make valid comparisons and draw valid conclusions. They communicate qualitative and quantitative data effectively, using scientific conventions and terminology. They evaluate evidence, making reasoned suggestions about how their working methods could be improved.</p> <p>Biologists describe processes and phenomena related to organisms, their behaviour and the environment, using abstract ideas and appropriate terminology, for example simple cell structure and function. They take account of a number of factors or use abstract ideas or models in their explanations of processes and phenomena, such as environmental factors affecting the distribution of organisms in habitats. They apply and use knowledge and understanding in unfamiliar contexts, such as a food web in a habitat. They describe some evidence for some accepted scientific ideas, such as the causes of variation between living things. They explain the importance of some applications and implications of science, such as the use of selective breeding</p>
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5	<p>Mastering</p> <p>Secure</p> <p>Developing</p>	<p><b>LEVEL 5</b> <b>Pupils will achieve 65%+ in a GCSE exam when converted from a raw score to a UMS score.</b> HSW - Level 5 Pupils decide appropriate approaches to a range of tasks, including selecting sources of information and apparatus. They select and use methods to obtain data systematically. They recognise hazard symbols and make, and act on, simple suggestions to control obvious risks to themselves and others. They use line graphs to present data, interpret numerical data and draw conclusions from them. They analyse findings to draw scientific conclusions that are consistent with the evidence. They communicate these using scientific and mathematical conventions and terminology. They evaluate their working methods to make practical suggestions for improvements.</p>
4	<p>Mastering</p> <p>Secure</p> <p>Developing</p>	<p><b>LEVEL 4</b> <b>Pupils will achieve 60%+ in a GCSE exam when converted from a raw score to a UMS score.</b> HSW - Level 4 Pupils decide on an appropriate approach, including using a fair test to answer a question, and select suitable equipment and information from that provided. They select and use methods that are adequate for the task. Following instructions, they take action to control obvious risks to themselves. They make a series of observations and measurements and vary one factor while keeping others the same. They record their observations, comparisons and measurements using tables and bar charts and begin to plot points to form simple graphs. They interpret data containing positive and negative numbers. They begin to relate their conclusions to patterns in data, including graphs, and to scientific knowledge and understanding. They communicate their conclusions using appropriate scientific language. They suggest improvements in their work, giving reasons.</p>



3		<p><b>LEVEL 3</b></p> <p><b>Pupils will achieve 70-100% in a KS3 test to achieve levels 3.1/3.2/3.3 with a 10% difference between each level respectively. Achievement at KS3 will be capped at 3.1. It is assumed that a KS3 student would not be able to achieve a level 4.3 or above as the subject knowledge to achieve this at GCSE will not have been covered yet and therefore is an unachievable level at this point in their science education.</b></p> <p><b>Pupils will achieve 50%+ in a GCSE exam when converted from a raw score to a UMS score.</b></p> <p>HSW - Level 3 Pupils respond to suggestions and put forward their own ideas about how to find the answer to a question. They recognise why it is important to collect data to answer questions. They use simple texts to find information. They make relevant observations and measure quantities, such as length or mass, using a range of simple equipment. Where appropriate, they carry out a fair test with some help, recognising and explaining why it is fair. They record their observations in a variety of ways. They provide explanations for observations and for simple patterns in recorded measurements. They communicate in a scientific way what they have found out and suggest improvements in their work.</p>
2		<p><b>LEVEL 2</b></p> <p><b>Pupils will achieve 40-69% in a KS3 test to achieve levels 2.1/2.2/2.3 with a 10% difference between each level respectively. Pupils will achieve 40%+ in a GCSE exam when converted from a raw score to a UMS score.</b></p> <p>Level 2 Biologists use their knowledge related to organisms, their behaviour and the environment to describe what they are observing, where it is observed and the conditions found there. They recognise similarities and differences between organisms and can sort based on this. They suggest answers to questions based on their own ideas and evidence. They identify science in everyday contexts and say if it is helpful.</p>



1	<p>Mastering</p> <p>Secure</p> <p>Developing</p>	<p>0.3 1% in a KS3 test 0.2 4% in a KS3 test 0.1 7% in a KS3 test</p> <p><b>LEVEL 1</b></p> <p><b>Pupils will achieve 10-39% in a KS3 test to achieve levels 1.3/1.2/1.1 with a 10% difference between each level respectively.</b> <b>Pupils will achieve 30%+ in a GCSE exam when converted from a raw score to a UMS score.</b></p> <p>Level 1 Biologists use their knowledge related to organisms, their behaviour and the environment to recognise, identify and describe a range of common plants, animals and natural events. They name and describe external parts or features of plants such as colour or length. They use this knowledge to identify organisms and make links between science and everyday experiences and objects.</p>
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