

Weston Point College: Grade Descriptors – Science

Assessment Criteria				
To gain a GCSE grade:	1 How science works	2 Organisms, their behaviour and the environment	3 Materials, their properties and the earth	4 Energy, forces and space
8+	<ul style="list-style-type: none"> • Young People recognise that different strategies are required to investigate different kinds of scientific questions, and use scientific knowledge and understanding to select an appropriate strategy. • Adapt their approach to practical work to control risk. • Record data that are relevant and sufficiently detailed, and choose methods that will obtain these data with the precision and reliability needed. • Analyse data and begin to explain, and allow for, anomalies. They carry out multi-step calculations and use compound measure. 	<ul style="list-style-type: none"> • Young People demonstrate extensive knowledge and understanding related to organisms, their behaviour and the environment. • 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. • Interpret, evaluate and synthesise data from a range of sources and in a range of context. • 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. • Describe and explain the importance of a wide range of 	<ul style="list-style-type: none"> • Young People demonstrate extensive knowledge and understanding related to materials, their properties and the Earth. • Use and apply this effectively in their descriptions and explanations, identifying links between topics, • Represent common compounds by chemical formulae and use these formulae to form balanced symbol equations for reactions. • Interpret, evaluate and synthesise data from a range of sources and in a range of contexts. • Show they understand the relationship between evidence and scientific ideas, and why scientific ideas may need to be changed. • Describe and explain the importance of a wide range of 	<ul style="list-style-type: none"> • Young People demonstrate extensive knowledge and understanding related to energy, forces and space. • Use and apply this effectively in their descriptions and explanations, identifying links between topics. • Interpret, evaluate and synthesise data from a range of sources and in a range of contexts. • Show they understand the relationship between evidence and scientific ideas, and why scientific ideas may need to be changed. • Describe and explain the importance of a wide range of applications and implications of science.

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	<ul style="list-style-type: none"> Communicate findings and arguments, showing awareness of a range of views. They evaluate evidence critically and suggest how inadequacies can be remedied. 	applications and implications of science.	applications and implications of science.	
7	<ul style="list-style-type: none"> Young People 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. Select and use methods to obtain reliable data, including making systematic observations and measurements with precision, using a range of apparatus. Recognise the need for a risk assessment and consult appropriate sources of information, which they follow. 	<ul style="list-style-type: none"> Young People 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. Make links between different areas of science in their explanations. Apply and use more abstract knowledge and understanding, in a range of contexts, explain how evidence supports some accepted scientific ideas. Explain, using abstract ideas where appropriate, the importance of some applications and implications of science. 	<ul style="list-style-type: none"> Young People describe a wide range of processes and phenomena related to materials, their properties and the Earth, using abstract ideas and appropriate terminology and sequencing a number of points. Make links between different areas of science in their explanations Apply and use more abstract knowledge and understanding, in a range of contexts. Explain how evidence supports some accepted scientific ideas, such as the reactivity series of metals. Explain, using abstract ideas where appropriate, the importance of some 	<ul style="list-style-type: none"> Young People describe a wide range of processes and phenomena related to energy, forces and space, using abstract ideas and appropriate terminology and sequencing a number of points Make links between different areas of science in their explanations. Apply and use more abstract knowledge and understanding in a range of contexts. Explain how evidence supports some accepted scientific ideas Explain, using abstract ideas where appropriate, the importance of some applications and implications

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	<ul style="list-style-type: none"> • Record data in graphs, using lines of best fit. • 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. • Use quantitative relationships between variables. • Communicate effectively, using a wide range of scientific and technical conventions and terminology, including symbols and flow diagrams. • Begin to consider whether the data they have collected are sufficient for the conclusions they have drawn. 		<p>applications and implications of science.</p>	<p>of science, such as the uses of electromagnets.</p>
6	<ul style="list-style-type: none"> • Young People identify an appropriate approach in 	<ul style="list-style-type: none"> • Young People describe processes and phenomena 	<ul style="list-style-type: none"> • Young People describe processes and phenomena 	<ul style="list-style-type: none"> • Young People describe processes and phenomena

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	<p>investigatory work, selecting and using sources of information, scientific knowledge and understanding.</p> <ul style="list-style-type: none"> • 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. • Recognise a range of familiar risks and take action to control them. • Record data and features effectively, choosing scales for graphs and diagrams. • 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. 	<p>related to organisms, their behaviour and the environment, using abstract ideas and appropriate terminology</p> <ul style="list-style-type: none"> • Take account of a number of factors or use abstract ideas or models in their explanations of processes and phenomena. • Apply and use knowledge and understanding in unfamiliar contexts • Describe some evidence for some accepted scientific ideas, such as the causes of variation between living things. • Explain the importance of some applications and implications of science. 	<p>related to materials, their properties and the Earth, using abstract ideas and appropriate terminology</p> <ul style="list-style-type: none"> • Take account of a number of factors or use abstract ideas or models in their explanations of processes and phenomena. • Apply and use knowledge and understanding in unfamiliar contexts. • Describe some evidence for some accepted scientific ideas. • Explain the importance of some applications and implications of science. 	<p>related to energy, forces and space, using abstract ideas and appropriate terminology,</p> <ul style="list-style-type: none"> • Take account of a number of factors in their explanations of processes and phenomena, • Use abstract ideas or models, • Apply and use knowledge and understanding in unfamiliar contexts. • Describe some evidence for some accepted scientific ideas, • Explain the importance of some applications and implications of science.
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	<ul style="list-style-type: none"> Manipulate numerical data to make valid comparisons and draw valid conclusions. Communicate qualitative and quantitative data effectively, using scientific conventions and terminology. Evaluate evidence, making reasoned suggestions about how their working methods could be improved. 			
5	<ul style="list-style-type: none"> Young People decide appropriate approaches to a range of tasks, including selecting sources of information and apparatus. Select and use methods to obtain data systematically. Recognise hazard symbols and make, and act on, simple suggestions to control obvious risks to themselves and others. 	<ul style="list-style-type: none"> Young People describe processes and phenomena related to organisms, their behaviour and the environment, drawing on abstract ideas and using appropriate terminology. Explain processes and phenomena, in more than one step or using a model, Apply and use knowledge and understanding in familiar contexts Recognise that both evidence and creative thinking 	<ul style="list-style-type: none"> Young People describe processes and phenomena related to materials, their properties and the Earth, drawing on abstract ideas and using appropriate terminology, Explain processes and phenomena, in more than one step or using a model. Apply and use knowledge and understanding in familiar contexts. Recognise that both evidence and creative thinking contribute to the development of scientific ideas. 	<ul style="list-style-type: none"> Young People describe processes and phenomena related to energy, forces and space, drawing on abstract ideas and using appropriate terminology Explain processes and phenomena, in more than one step or using a model, such as the length of a day or a year. Apply and use knowledge and understanding in familiar contexts. Recognise that both evidence and creative thinking

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	<ul style="list-style-type: none"> • Use line graphs to present data, interpret numerical data and draw conclusions from them. • Analyse findings to draw scientific conclusions that are consistent with the evidence. • Communicate these using scientific and mathematical conventions and terminology. • Evaluate their working methods to make practical suggestions for improvements. 	<p>contribute to the development of scientific ideas.</p> <ul style="list-style-type: none"> • Describe applications and implications of science. 	<ul style="list-style-type: none"> • Describe applications and implications of science. 	<p>contribute to the development of scientific ideas. Describe applications and implications of science.</p>
4	<ul style="list-style-type: none"> • Young People decide on an appropriate approach, including using a fair test to answer a question, and select suitable equipment and information from that provided. • Select and use methods that are adequate for the task. • Following instructions, they take action to 	<ul style="list-style-type: none"> • Young People describe some processes and phenomena related to organisms, their behaviour and the environment, drawing on scientific knowledge and understanding and using appropriate terminology • Recognise that evidence can support or refute scientific ideas • Recognise some applications and implications of science, 	<ul style="list-style-type: none"> • Young People describe some processes and phenomena related to materials, their properties and the Earth, drawing on scientific knowledge and understanding and using appropriate terminology. • Recognise that evidence can support or refute scientific ideas, • Recognise some applications and implications of science, 	<ul style="list-style-type: none"> • Young People describe some processes and phenomena related to energy, forces and space, drawing on scientific knowledge and understanding and using appropriate terminology. • Recognise that evidence can support or refute scientific ideas, • Recognise some applications and implications of science, such as the use of electrical

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	<p>control obvious risks to themselves.</p> <ul style="list-style-type: none">• Make a series of observations and measurements and vary one factor while keeping others the same.• Record their observations, comparisons and measurements using tables and bar charts and begin to plot points to form simple graphs.• Interpret data containing positive and negative numbers.• Begin to relate their conclusions to patterns in data, including graphs, and to scientific knowledge and understanding.• Communicate their conclusions using appropriate scientific language.• Suggest improvements in their work, giving reasons.	<p>such as the use of predators to control pest populations.</p>	<p>such as the safe use of acids and alkalis.</p>	<p>components to make electrical devices.</p>
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3	<ul style="list-style-type: none"> • Young People respond to suggestions and put forward their own ideas about how to investigate an idea or find answers to questions. • Recognise why it is important to collect data to investigate ideas and answer questions, and use texts to find information. • Begin to recognise risks with help. • Make relevant observations and measure quantities • Carry out fair tests with some help, recognising and explaining what makes them fair. • Record findings in a variety of ways, including tables or charts. • Give explanations for observations and for patterns in measurements they have made and recorded. 	<ul style="list-style-type: none"> • Young People use knowledge and understanding of organisms, their behaviour and the environment • Use simple scientific ideas with evidence they have collected to give explanations of their observations, linking cause and effect • Recognise and explain the purpose of a variety of scientific and technological developments in their everyday lives, for example medicines helping people get better when they are ill. 	<ul style="list-style-type: none"> • Young People use knowledge and understanding of materials, their properties and the Earth to sort materials into groups in a variety of ways, according to their properties. • Explain the ways in which some materials are suited to specific • Classify changes in materials as reversible • Use simple scientific ideas with evidence they have collected to give explanations of their observations, linking cause and effect • Recognise and explain the purpose of a variety of scientific and technological developments in their everyday lives, for example sustainable packaging. 	<ul style="list-style-type: none"> • Young People use their knowledge and understanding of energy, forces and space to link cause and effect in their observations of the properties and effects of light, sound, forces, and electricity. • Begin to make generalisations such as sounds getting fainter the further the listener is from the source. • Use simple scientific ideas with evidence they have collected to give explanations of their observations, linking cause and effect. • They recognise and explain the purpose of a variety of scientific and technological developments in their everyday lives.
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	<ul style="list-style-type: none"> Communicate in a scientific way what they have found out and suggest improvements in their work. 			
2	<ul style="list-style-type: none"> Young People respond to suggestions and make their own suggestions, with help, about how to collect relevant data and answer questions. Find information by using texts, with help. Follow direct instructions in order to stay safe. Make observations and measurements to compare living things, objects and events, using equipment provided for them. Record findings using prepared tables and communicate observations using scientific vocabulary. Say whether what happened was what they expected and, when prompted, suggest 	<ul style="list-style-type: none"> Young People use their knowledge related to organisms, their behaviour and the environment to describe plants and animals, the places they are found and the basic conditions they need in order to survive. Recognise and describe similarities and differences between the plants, humans and other animals they observe, using these to sort them into groups. Use questions based on their own ideas and evidence Identify science in everyday contexts and say whether it is helpful, for example ways of growing vegetables for food. 	<ul style="list-style-type: none"> Young People use their knowledge related to materials, their properties and the Earth to identify a range of common materials and some of their properties. Recognise, and describe similarities and differences between the materials they observe, using these to sort them into groups. Recognise and describe ways in which some materials are changed by heating or cooling or by processes such as bending or stretching. Suggest answers to questions, based on their own ideas and evidence. Identify science in everyday contexts and say whether it is helpful, for example ice melting. 	<ul style="list-style-type: none"> Young People use their knowledge related to energy, forces and space to recognise, describe and compare a range of properties and effects of light, sound, forces, and electricity Suggest answers to questions such as which sound is loudest based on their own ideas and evidence. Identify science in everyday contexts and say whether it is helpful, for example electricity in domestic appliances.

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	different ways they could have done things.			
1	<ul style="list-style-type: none"> • Young People respond to prompts to suggest practical ways to find answers to questions. • Make observations about features of objects, living things and events. • Communicate their findings in ways such as talking about their work in everyday terms, or through drawings or by completing pictograms. 	<ul style="list-style-type: none"> • Young People 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. • Name and describe external parts or features of plants, such as leaf colour; humans, such as head, arm; and other animals, such as coat colour. • Use that evidence to identify plants or animals and make links between science and everyday objects and experiences. 	<ul style="list-style-type: none"> • Young People use their knowledge related to materials, their properties and the Earth, to recognise, and describe some common materials, and their sensory properties • Communicate their descriptions and observations in terms of these properties. • Recognise evidence that has been used to answer a question such as identifying similar materials • Make links between science and everyday objects and experiences such as waterproof materials being used to keep things dry. 	<ul style="list-style-type: none"> • Young People use their knowledge related to energy, forces and space to describe some changes in light, sound or movement, that result from actions, • Recognise that light and sound come from a variety of sources, such as the Sun or a musical instrument. • Recognise evidence that has been used to answer a question, such as how a musical instrument makes a noise. • Make links between science and everyday objects and experiences such as the Sun being a light source.