Year Group 8 Subject Science Assessment Framework					
Assessment Objective	Grade 1	Grade 2-3	Grade 4-5	Grade 6-7	Grade 8+
Thinking scientifically **Test**	• **Identify** differences, similarities or changes related to simple scientific ideas, processes or phenomena • **Respond** to ideas given to them to answer questions or suggest solutions to problems • **Represent** things in the real world using simple physical models • **Use** straightforward scientific evidence to answer questions, or to support their findings	• **Use** scientific ideas when **describing** simple processes or phenomena • **Use** simple models to **describe** scientific ideas • **Identify** scientific evidence that is being used to support or refute ideas or arguments	• **Use** abstract ideas or models or more than one step when **describing** processes or phenomena • **Explain** processes or phenomena, suggest solutions to problems or answer questions by drawing on abstract ideas or models • **Recognise** scientific questions that do not yet have definitive answers • **Identify** the use of evidence and creative thinking by scientists in the development of scientific ideas	• **Use** abstract ideas or models or multiple factors when **explaining** processes or phenomena • **Identify** the strengths and weaknesses of particular models • **Describe** some scientific evidence that supports or refutes particular ideas or arguments, including those in development • **Explain** how new scientific evidence is discussed and interpreted by the scientific community and how this may lead to changes in scientific ideas	• **Make explicit connections** between abstract ideas and/or models in **explaining** processes or phenomena • Employ a systematic approach in deciding the relative importance of a number of scientific factors when **explaining** processes or phenomena • **Explain** how different pieces of evidence support accepted scientific ideas or contribute to questions that science cannot fully answer • **Explain** the processes by which ideas and evidence are accepted or rejected by the scientific community
Understanding the applications and implications of science **Debates**	• **Explain** the purposes of a variety of scientific or technological developments • **Link** applications to specific characteristics or properties • **Identify** aspects of our lives, or of the work that people do, which are based on scientific ideas	• **Describe** some simple positive and negative consequences of scientific and technological developments • **Recognise** applications of specific scientific ideas	• **Describe** different viewpoints a range of people may have about scientific or technological developments • **Indicate** how scientific or technological developments may affect	• **Describe** how different decisions on the uses of scientific and technological developments may be made in different economic, social or cultural contexts • **Explain** how societies are affected by particular	• **Suggest** ways in which scientific and technological developments may be influenced • **Explain** how scientific discoveries can change worldviews

		• **Identify** aspects of science used within particular jobs or roles	different groups of people in different ways • **Identify** ethical or moral issues linked to scientific or technological developments • **Link** applications of science or technology to their underpinning scientific ideas	scientific applications or ideas • **Describe** how particular scientific or technological developments have provided evidence to help scientists pose and answer further questions • **Describe** how aspects of science are applied in particular jobs or roles	• **Suggest** economic, ethical/moral, social or cultural arguments for and against scientific or technological developments • **Explain** how creative thinking in science and technology generates ideas for future research and development
Communicating and collaborating in science **Peer/LORIC?**	• **Present** simple scientific data in more than one way, including tables and bar charts • **Use** scientific forms of language when communicating simple scientific ideas, processes or phenomena • **Identify** simple advantages of working together on experiments or investigations	• **Select** appropriate ways of presenting scientific data • **Use** appropriate scientific forms of language to communicate scientific ideas, processes or phenomena • **Use** scientific and mathematical conventions when communicating information or ideas	• **Distinguish** between opinion and scientific evidence in contexts related to science, and use evidence rather than opinion to support or challenge scientific arguments • **Decide** on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables • **Use** appropriate scientific and mathematical conventions and terminology to communicate abstract ideas • **Suggest** how collaborative approaches to specific experiments or investigations may improve the evidence collected	• **Identify** lack of balance in the presentation of information or evidence • **Choose** forms to communicate qualitative or quantitative data appropriate to the data and the purpose of the communication • **Distinguish** between data and information from primary sources, secondary sources and simulations, and present them in the most appropriate form	• **Explain** how information or evidence from various sources may been manipulated in order to influence interpretation • Effectively **represent abstract ideas** using appropriate symbols, flow diagrams and different kinds of graphs in presenting **explanations and arguments** • **Explain** how scientists with different specialisms and skills have contributed to particular scientific or technological developments

Using investigative approaches **Investigation**	• **Identify** one or more control variables in investigations from those provided • **Select** equipment or information sources from those provided to address a question or idea under investigation • Make some accurate observations or whole number measurements relevant to questions or ideas under investigation • **Recognise** obvious risks when prompted	• **Decide** when it is appropriate to carry out fair tests in investigations • **Select** appropriate equipment or information sources to address specific questions or ideas under investigation • Make sets of observations or measurements, identifying the ranges and intervals used • **Identify** possible risks to themselves and others	• **Recognise** significant variables in investigations, selecting the most suitable to investigate • **Explain** why particular pieces of equipment or information sources are appropriate for the questions or ideas under investigation • Repeat sets of observations or measurements where appropriate, selecting suitable ranges and intervals • Make, and act on, suggestions to control obvious risks to themselves and others	• **Apply** scientific knowledge and understanding in the planning of investigations, identifying significant variables and recognising which are independent and which are dependent • **Justify** their choices of data collection method and proposed number of observations and measurements • Collect data choosing appropriate ranges, numbers and values for measurements and observations • **Independently recognise** a range of familiar risks and take action to control them	• **Formulate** questions or ideas that can be investigated by **synthesising** information from a range of sources • **Identify** key variables in complex contexts, explaining why some cannot readily be controlled and planning appropriate approaches to investigations to take account of this • **Explain** how to take account of sources of error in order to collect reliable data • **Recognise** the need for risk assessments and consult, and act on, appropriate sources of information
Working critically with evidence **Investigation/Test**	• **Identify** straightforward patterns in observations or in data presented in various formats, including tables, pie and bar charts • **Describe** what they have found out in experiments or investigations, linking cause and effect • **Suggest** improvements to their working methods	• **Identify** patterns in data presented in various formats, including line graphs • **Draw** straightforward conclusions from data presented in various formats • **Identify** scientific evidence they have used in drawing conclusions • **Suggest** improvements to their working methods, giving reasons	• **Interpret data** in a variety of formats, recognising obvious inconsistencies • **Provide** straightforward explanations for differences in repeated observations or measurements • **Draw** valid conclusions that utilise more than one piece of supporting evidence, including numerical data and line graphs	• **Suggest** reasons based on scientific knowledge and understanding for any limitations or inconsistencies in evidence collected • **Select** and **manipulate** data and information and use them to contribute to conclusions • **Draw** conclusions that are consistent with the evidence they have collected and **explain** them using scientific knowledge and understanding	• **Explain** how data can be interpreted in different ways and how unexpected outcomes could be significant • **Identify** quantitative relationships between variables, using them to inform conclusions and make further predictions • **Assess** the strength of evidence, deciding whether it is sufficient to support a conclusion • **Explain** ways of modifying working

			• **Evaluate** the effectiveness of their working methods, making practical suggestions for improving them	• **Make** valid comments on the quality of their data	methods to improve reliability