



Subject: Year 7 Space and the Universe

Overarching Topic: Space and the Universe			
<p>Why is this topic being studied at this time?</p> <p>How does it fit into the wider subject curriculum?</p>	<ul style="list-style-type: none"> Questions about where we are, and where we came from, have been asked for thousands of years. In the past century, astronomers and astrophysicists have made remarkable progress in understanding the scale and structure of the universe, its evolution and ours. New questions have emerged recently. 'Dark matter', which bends light and holds galaxies together but does not emit electromagnetic radiation, is everywhere – what is it? And what is causing the universe to expand ever faster? This topic links into Space and the Universe covered in Key Stage 2 and into the Triple Space topic at GCSE. Whilst this is not covered in Combined Science, it is still remains in year 7 as students are fascinated with Space and their place within the Universe. 		
	Critical	Core	Pinnacle
<p>The Big Questions (What questions will students be able to answer upon mastery of the topic?)</p>	<ul style="list-style-type: none"> What are the planets in our solar system? Why do we have night and day? Can you describe our place in the universe? What discoveries have changed our view of the universe? What is the Big Bang? What is the Doppler effect? 	<ul style="list-style-type: none"> Can you describe the process behind night and day and the seasons and relate this to our position in the universe? Why do places on the Earth experience different daylight hours and amounts of sunlight during the year? Can you describe how a star is born? What is the evidence for the Big Bang? Can you explain how red-shift provides evidence that the universe is expanding? 	<ul style="list-style-type: none"> Where did our solar system come from? How do astronauts exploit orbits? Explain how flying from London to New York on a Concorde, you can arrive before you left. What can escape from a black hole? Create your own pinnacle questions
<p>The Key Skills/ Techniques</p>	<p>The sophistication and application of skills will become more advanced as students' progress through the critical, core and pinnacle knowledge.</p>		
	<p>Skill/Technique</p>	<p>How will this skill be developed?</p>	
	<p>1. Graphing & Drawing</p>	<p>Draw graphs with suitable scales, axes and units. Correct line of best fit. Appreciation of anomalies and processed data. Scientific drawing of cells, concepts and scientific equipment.</p>	
	<p>2. Variables</p>	<p>Identify independent, dependent and control variables and devise experiments to include these to ensure valid results. Appreciation of uncertainty.</p>	
	<p>3. Data Analysis</p>	<p>Describe, explain and predict trends. Graph and table data interpretation. Identify links and patters within and between topics. Statistical analysis of data to include mode/median/mean/range determination. Drawing justified conclusions from presented data.</p>	
	<p>4. Application</p>	<p>Apply known and taught theory in unfamiliar contexts. Making links to taught theory and extracting key ideas. Communicating using correct scientific terminology.</p>	
<p>5. Working Scientifically</p>	<p>Identify hazards and planning to limit risk. Describe how to improve accuracy/precision/repeatability/reproducibility/validity. Evaluate reliability of methods and investigations, taking in to account data analysis.</p>		