PHYSICS

Learning objectives I can:	I can do this very well	I can do this quite well	I need to do more work on this
3.1 Recall that the Solar System is part of the Milky Way galaxy			
3.2 Describe a galaxy as a collection of stars			
3.3 Recall that the Universe includes all of the galaxies			
3.4 Compare the relative sizes of and the distances between the Earth, the Moon, the planets, the Sun, galaxies and the Universe			
HSW 14 Describe how scientists share data and discuss new ideas, and how over time his process helps to reduce uncertainties and revise scientific theories			
3.8 *Construct a simple spectrometer, from a CD or DVD and use it to analyse common light sources*			
3.5 Describe the use of other regions of the electromagnetic spectrum by some modern telescopes			
3.7 Demonstrate an understanding of the impact of data gathered by modern telescopes on our understanding of the Universe, including: **a** the observation of galaxies because of improved magnification			
b the discovery of objects not detectable using visible light			
c the ability to collect more data			
3.9 Explain why some telescopes are located outside the Earth's atmosphere			
H 3.10 Analyse data provided to support the location of telescopes outside the Earth's atmosphere			
HSW 4 Identify questions that science cannot currently answer, and explain why these questions cannot be answered			
3.6 Describe the methods used to gather evidence for life beyond Earth, including space probes, soil experiments by landers, Search for Extraterrestrial Intelligence (SETI)			
HSW 13 Describe the social, economic and environmental effects of decisions about the uses of science and technology			
3.11 Describe the evolution of stars of similar mass to the Sun through the following stages: **a** nebula			
b star (main sequence)			
c red giant			
d white dwarf			

3.12 Describe the role of gravity in the life-cycle of stars			
H 3.13 Describe how the evolution of stars with a mass larger than the Sun is different, and may end in a black hole or neutron star			
HSW 2 Describe the importance of creative thought in the development of hypothesis and theories			
3.14 Demonstrate an understanding of the Steady State and Big Bang theories			
3.15 Describe evidence supporting the Big Bang theory, limited to red-shift and the cosmic microwave background (CMB) radiation			
3.16 Recognise that as there is more evidence supporting the Big Bang theory than the Steady State theory, it is the currently accepted model for the origin of the Universe			
HSW 1 Explain what scientific data is			
HSW 2 Describe how data is used by scientists to provide evidence that increases our scientific understanding			
3.17 Describe that if a wave source is moving relative to an observer there will be a change in the observed frequency and wavelength			
H 3.18 Demonstrate an understanding that if a wave source is moving relative to an observer there will be a change in the observed frequency and wavelength			
H 3.19 Describe the red-shift in light received from galaxies at different distances away from the Earth			
H 3.20 Explain why the red-shift of galaxies provides evidence for the Universe expanding			
H 3.21 Explain how both the Big Bang and Steady State theories of the origin of the Universe both account for red-shift of galaxies			
H 3.22 Explain how the discovery of the CMB radiation led to the Big bang theory becoming the currently accepted model			
HSW 3 Describe how phenomena are explained using scientific models			