

SCIENCE FOR PUBLIC UNDERSTANDING

Outline scheme of work for teaching Topic 10.6 The Move Away from an Earth-Centred View of the Universe.
Including Key Skills opportunities in Communication and Information Technology.

	Links with ideas and explanations parts of syllabus	Time (hours)	Focus of session	Textbook Pages	Resources	Suggested activity
1		1.5	Early cosmological theories. Especially Ptolemy and Copernicus	194-196	Video: Hawking's Universe programme 1. Teacher's notes can be downloaded from the Science and Technology section of: www.pbs.org	Discussion of early theories and the evidence that prompted change
1	12.1a 12.1b 12.1d 12.1e 12.1f 12.1g 12.1h 13.5	1.5	Work of Galileo, Brahe Kepler and Newton	198-203	Short and long focal length convex lenses set as refracting telescope.	Telescope construction and estimation of magnification. The importance of careful data.
2	12.1c 12.1k 12.1l	1.5	The solar system and the conflict with the church	192 197	Video: Hawking's Universe programme 1.	Discussion of the place of the early church as centre of science and theology and the conflicts this led to. Discussion of Scientific Method.
2	12.1j	1.5	The work of Adams and Leverrier. The voyager missions	204-207	Notes on the Voyager Missions: www.nssdc.gsfc.nasa.gov/planetary/voyager/html	How careful observation and accepted theory led to the discovery of other planets.
3	12.1b 13.4 13.6	1.5	The expanding universe. Its age and scale.	208-216	Teacher's notes: The Big Bang and Cosmic Alchemy.	Discussion of the size of the universe and its evolution. Hubble's work
3		1.5	The Big Bang	217-220	www.phy.syr.edu/courses/modules/SETI/TUTORIAL	The work of Penzias and Wilson to confirm the "Hot Big Bang" Theory.
4		1.5	Relativity – Michelson and Morley and absolute space and time.		3cm microwaves kit demonstration.	Interferometry and the invariance of the speed of light.
4	12.1l	1.5	Relativity – time dilation and length contraction			Discussion of Einstein's Special Theory.
5		1.5	Review whole section.	192-220		
5		1.5	Introduce presentation exercise		PowerPoint. OHPT and pens.	Students make a PowerPoint, or other presentation,
6		1.5	Support lesson for presentation.		Key Skills:C3.16 IT 3.1 IT3.2 IT3.3	to illustrate and summarise this work on cosmology.
6		1.5	Support lesson for presentation.			
7		1.5	Presentation			
7		1.5	Presentation			