

Cosmology (the Big Bang)

Specification reference	Checklist questions	
5.5.3 a	Can you calculate distances measured in astronomical units, light-years, and parsecs?	<input type="checkbox"/>
5.5.3 b	Can you define stellar parallax?	<input type="checkbox"/>
5.5.3 c	Can you understand the equation relating the parallax p in seconds of arc and the distance d in parsec?	<input type="checkbox"/>
5.5.3 e	Can you explain the Doppler effect?	<input type="checkbox"/>
5.5.3 e	Can you describe the Doppler shift of electromagnetic radiation?	<input type="checkbox"/>
5.5.3 f	Can you demonstrate the Doppler equation for a source of electromagnetic radiation moving relative to an observer, $\frac{\Delta\lambda}{\lambda} \approx \frac{\Delta f}{f} \approx \frac{v}{c}$?	<input type="checkbox"/>
5.5.3 g	Can you demonstrate Hubble's law, $v \approx H_0 d$, for receding galaxies?	<input type="checkbox"/>
5.5.3 h	Can you explain galactic red shift and the model of an expanding Universe?	<input type="checkbox"/>
5.5.3 i	Can you explain Hubble constant H_0 in $\text{km s}^{-1} \text{Mpc}^{-1}$ and s^{-1} ?	<input type="checkbox"/>
5.5.3 j	Can you explain the Big Bang theory?	<input type="checkbox"/>
5.5.3 k	Can you describe the experimental evidence for the Big Bang theory from microwave background radiation?	<input type="checkbox"/>
5.5.3 l	Can you explain the idea that the Big Bang gave rise to the expansion of space-time?	<input type="checkbox"/>
5.5.3 m	Can you explain the estimation of the age of the Universe?	<input type="checkbox"/>

Specification reference	Checklist questions	
5.5.3 m	Can you demonstrate that $t \approx H_0^{-1}$?	<input type="checkbox"/>
5.5.3 n	Can you describe the evolution of the Universe after the Big Bang to the present?	<input type="checkbox"/>
5.5.3 o	Can you explain current ideas about the composition of the Universe in terms of dark energy, dark matter, and a small percentage of ordinary matter?	<input type="checkbox"/>