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Name:

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Red shift

Aim

To check your understanding of, and use ICT to find out more about, the red shift.

1. Complete the following sentences using words from the list below.

away from faster longer shorter slower towards

- a. The colour of light depends on the wavelength of the light.
 - i. Red light has a _____ wavelength than any other colour of light.
 - ii. Violet light has a _____ wavelength than any other colour of light.
- b. The spectrum of light from a star or galaxy is crossed by dark vertical lines. The lines are due to missing wavelengths in the spectrum.
 - i. The dark lines in the spectrum of a distant galaxy are shifted _____ the red part of the spectrum. This is called a red shift because it makes the light waves _____.
 - iii. The shift is because distant galaxies are moving _____ us. The light waves from them are stretched to _____ wavelengths.
 - iv. The _____ a galaxy is moving away from us, the bigger its red shift is.
- c.
 - i) For two distant galaxies at different distances, the one with the smaller red shift is moving _____.
 - ii) The further away a galaxy is from us, the _____ it is moving away from us.
 - iii) The Universe is expanding and all the distant galaxies are moving _____ each other.

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2. The table below gives the distance and red shift of two distant galaxies.

Galaxy	Distance 100 million light years)	Speed ($\times$ 100 km/s)
Bootes	2.3	39
Ursa major	1.0	15

- a. Use the Internet to find out about some more distant galaxies. For each one, find out how far it is and its red shift.
- d. i) Plot a graph of red shift against distance on the grid below.
- ii) What conclusions can you draw about the link between red shift and distance?