

GCSE Physics B (Twenty First Century Science)
J259/02 Depth in physics (Foundation Tier)

Question Set 13

1 Large telescopes, on the Earth and in space, have been used to make exciting discoveries.

(a) (i) What is the difference between a planet like the Earth and a star like our Sun? [1]

(ii)* In 2010 the star HD10180 was discovered. It is a yellow-colour star like the Sun and it has at least 7 planets orbiting it to create a planetary system.

Scientists believe the star, HD10180, and the planets orbiting it, were formed in a similar way to our Solar System.

Draw a labelled diagram of the HD10180 planetary system, **and** describe how the star and its planets may have been formed. [6]

(b) Galaxy GN-z11 is one of the most distant galaxies discovered.

The table shows the data on two other galaxies much closer to us.

Galaxy	Distance from us (m)	Receding speed (km/s)
Tadpole galaxy	3.8×10^{24}	9400
Cigar galaxy	1.1×10^{23}	200

(i) What conclusion can you draw between the distance of a galaxy and its speed? [1]

(ii) Write a list of the **three** named galaxies above, in order of increasing red-shift.

_____→
lower red-shift higher red-shift

[2]

Total Marks for Question Set 13: 10

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