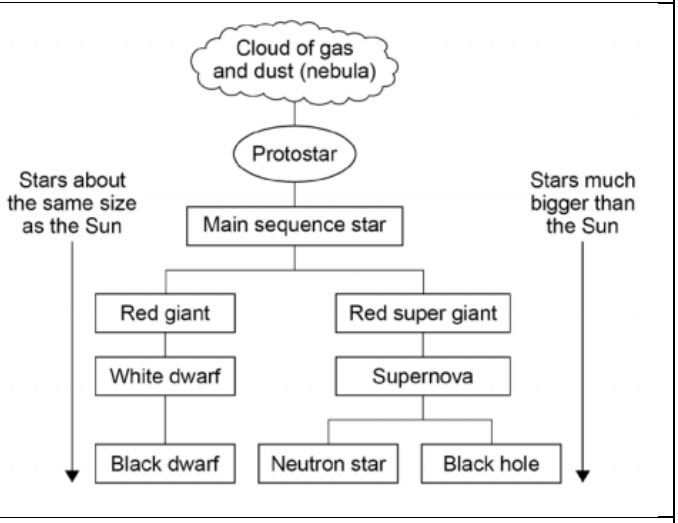
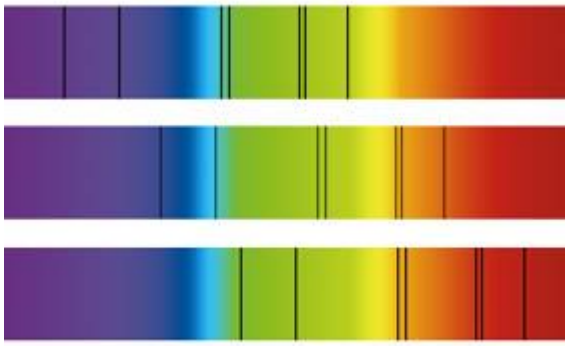
Question	Answer
How many stars are in our solar system?	One - the sun
Name the planets in our Solar System in order of distance from the sun.	Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
What defines a planet?	A body that orbits a star, is massive enough for its own gravity to make it round shaped, and has "cleared its neighbourhood" of smaller objects around its orbit.
What defines a moon?	A natural object which orbits a planet
What type of object is Pluto?	Dwarf planet
What is the name of our galaxy?	Milky Wat
How was the Sun formed?	From clouds of dust and gas drawn together by gravity, which caused fusion reactions to occur.
Outline the life cycle of a star for stars the size of our Sun and stars much bigger than our Sun.	
What force pulls the dust and gas together?	Gravitational force
What is nuclear fusion?	When two small nuclei fuse together to form one larger nucleus, releasing energy in the reaction.
How does nuclear fusion relate to stars?	The energy released by fusion reactions leads to the light that we see from stars. It causes an outward force that would cause the star to expand if it weren't in equilibrium with the force of the gravitational collapse.
Which elements are produced in fusion in stars?	All naturally occurring elements, up to iron.
Where are elements heavier than this produced?	In a supernova
How are they distributed across the universe?	In the supernova explosion
What is the force that keeps planets and satellites in orbit?	Gravitational force
What shape are the orbits of the planets?	Circular

What is an artificial satellite?	Something man-made which is in orbit of the Earth
In a circular orbit, how can there be changing velocity if the speed is constant?	As it is attracted by gravity, it is constantly changing direction to remain in the circular orbit.
If the speed of an orbit changes, what else must change in a stable orbit?	The radius of orbit
What is the Doppler Effect?	The observed frequency of waves emitted by a moving object appear changed.
What is red-shift?	There is an observed increase in the wavelength of light from most distant galaxies. The further away the galaxies, the faster they are moving and the bigger the observed increase in wavelength.
What is the Big Bang theory?	It suggests that the universe began from a very small region that was extremely hot and dense.
How does observed red-shift support the Big Bang theory?	It shows that the universe is expanding, so therefore must have once been much smaller.
Since 1998 onwards, observations of supernovae suggest that…	The furthest away galasxies are moving away from us even faster.
Explain what this image shows if the middle spectrum is from our Sun 	The top spectrum shows the absorption pattern (black lines) shifted towards the shorter, blue wavelengths of light - so this star must be moving towards us as the light is being compressed. The bottom spectrum shows the pattern shifted towards the longer, red wavelengths - so this star must be moving away from us as light is being stretched.
Why is it important for scientists to observe?	Observations allow them to obtain data, which they use to arrive at theories like the Big Bang theory.
There is still lots that scientists don't understand about the universe such as dark matter and dark energy. What are they an explanation for?	The expansion of the universe is slower than scientists would expect, so there must be something holding the universe together. We think about 68% of the universe is dark energy, 27% is dark matter and the rest is our known universe. We call them dark because we don't know much about them, but believe that they must exist to make sense of observations.

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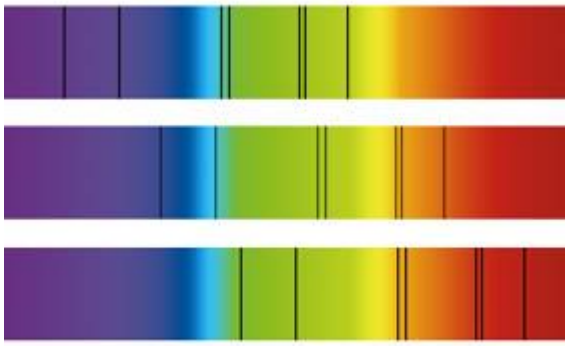
Explain what this image shows if the middle spectrum is from our Sun 	
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