Space physics

Answers

GCSE science knowledge recall

This topic online

Q	Answer	Remember
1	the Milky Way	It is one of billions of galaxies in the universe.
2	8	Pluto was reclassed as a dwarf planet in 2006.
3	moon	Artificial satellites are the ones we launch, such as weather or GPS satellites.
4	nebula	Gravity pulls the dust and gas together to start a new star.
5	protostar	Proto means first. It gets hotter as particles collide more and more often.
6	nuclear fusion	Hydrogen nuclei fuse into helium, releasing huge amounts of energy.
7	main sequence star	It is stable for billions of years.
8	gravity	Balanced forces keep the star at a steady size.
9	red giant	Much bigger stars become red supergiants instead.
10	white dwarf	It slowly cools and fades to a black dwarf.
11	black dwarf	Nebula, protostar, main sequence, red giant, white dwarf, black dwarf.
12	supernova	It can briefly outshine a whole galaxy.
13	black hole	The biggest stars leave a black hole, where gravity is so strong that light cannot escape.
14	supernova	Elements up to iron form by fusion in stars; the heaviest ones need a supernova.
15	The explosion throws the elements made inside the star out into space, where they can later form new stars and planets.	The atoms in your body were once made inside a star.
16	gravity	Gravity provides the force that keeps pulling the planet towards the Sun.
17	circular	Real orbits are slightly elliptical, but treating them as circles works well.
18	yes	Its direction keeps changing, so its velocity keeps changing - it is accelerating towards the centre.
19	towards the centre	The force and the acceleration both point towards the centre of the circle.
20	smaller	Closer in, gravity is stronger, so a smaller orbit needs a higher speed to stay stable.
21	the Earth	Planets orbit the Sun; moons orbit planets.

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Q	Answer	Remember
22	red-shift	The light is shifted towards the red, long-wavelength end of the spectrum.
23	bigger	More distant galaxies are moving away faster, so their light is stretched more.
24	expanding	Think of dots on a balloon spreading apart as it is blown up.
25	Big Bang	Red-shift is strong evidence for it.
26	Galaxies are moving away and more distant ones move faster, so the universe is expanding, which suggests it all started from one small point.	Run the expansion backwards and everything ends up in one place.
27	speeding up	This surprised scientists, who had expected gravity to slow the expansion.
28	dark energy	Nobody yet knows what it is - an open question in science.
29	dark matter	Galaxies spin too fast for the matter we can see to hold them together.
30	longer	Longer wavelength, lower frequency, towards the red end.

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