

The Creation Of The Universe

People have long wondered how the universe originated (came about). Some believe a great Creator made it, while others prefer a different explanation. Whichever the case, two main scientific theories have arisen: the

'Big Bang' theory and the 'Steady State' theory.

The Big Bang Theory (The Open Universe)

This is the most popular of the theories and, at present, the one with the most supporting evidence. It is believed that about 15 billion years ago the universe was compressed into a tiny, plum-sized ball held together by gravity.

14 Write 15 billion in numbers. _____

15 What is gravity? _____

A great explosion occurred and the previously compressed 'ball' released its hold on every molecule and atom within it. The particles spread further and further apart and clusters of matter united to become the planets, the stars, and all the other celestial objects we now find in our skies. These objects continue to spread out in space and the universe continues to grow outward. It is an expanding universe. Edwin Powell Hubble (1889-1953), an American astronomer, proved the existence of galaxies apart from our own and provided evidence to suggest that objects are moving in an outward direction (that is, they are receding from us).

16 What is the name of 'our' galaxy. _____

The Big Crunch Theory (The Closed Universe)

This is currently a less popular theory, it also starts out with a bang but the contents of the previously compressed ball do not move outward endlessly. Eventually they slow to a stop, whereupon gravity pulls everything together once more. When the universe is again fully compressed into a tiny ball, another explosion occurs and a new universe is created (not necessarily identical to the previous one). This theory suggests the universe is continually expanding and contracting.

Sir Fred Hoyle (1915-2001), English astronomer, former president of the Royal Astronomical Society, science fiction writer and mathematician, was one of the earliest proponents of the 'Steady State' Theory of the universe. One of his most memorable quotes is, 'Space isn't remote at all. It's only an hour's drive away if your car could go straight upwards'. He also coined the phrase 'big bang cosmology', which was meant to belittle the alternative to his theory of the universe.

17 Give your own definition of 'space', _____

Research

If you read a biography of Fred Hoyle or another important recent astronomer, you might find the words in the following questions mentioned.

18 Define 'astrophysics'. _____

19 Define 'cosmology'. _____

20 Define 'quasi-stellar'. _____

21 Define 'interstellar'. _____

22 Define 'astrobiology'. _____

23 Define 'primordial soup'. _____