

The Universe

The Universe is about 13.7 billion years old. Before the Universe sprang into existence there was nothing; emptiness, silence & time didn't exist. Trying to imagine this can scramble the mind, so let's move quickly on to when there was something.

In the first moment of time, the Universe was infinitely solid, small & hot. This was where all the materials that would make everything you see in the Universe today were stored. It was many times smaller than this dot

Wasn't there a **BIG BANG**?



The big bang signifies the very beginning of time. There was no BANG at the big bang! As far as onomatopoeias* go it's not the right one for this instant. The **BIG SHUSH** may have been a better one! Sound needs something to travel through & there was nothing there.

*an **onomatopoeia** is a word that sounds like the thing it is describing: Bang! Splash! Plop! Crash! Boom! Sneeze!

Quick Universe Quiz

- | | |
|---|--------------------------|
| 1) How old is the Universe? | Score |
| <input type="text"/> | <input type="checkbox"/> |
| 2) Did time exist before the Universe? | <input type="checkbox"/> |
| <input type="text"/> | <input type="checkbox"/> |
| 3) Is the Universe getting smaller or bigger? | <input type="checkbox"/> |
| <input type="text"/> | <input type="checkbox"/> |
| 4) What are Elementary Particles? | <input type="checkbox"/> |
| <input type="text"/> | <input type="checkbox"/> |
| 5) What are Elements? | <input type="checkbox"/> |
| <input type="text"/> | <input type="checkbox"/> |

2 points for every correct answer

Total Score

>7 A Universe Guru
>5 You're Okey Dokey
<5 Complicated isn't it?

This tiny clump of materials started to expand outwards. Its contents spread, like a cloud of dust, rapidly & evenly across the space opening up around it. The spreading slowed down, but it never completely stopped.

The Universe is still expanding today

A new thing, which we now call **TIME**, had begun.

Over time the swirling, spreading dust started to clump together until stars, planets and moons were formed. This took millions of years.

If you're wondering what sort of glue you need to stick a universe together well it's not glue at all, but gravity & the other forces of nature.

From the very Small to the extremely BIG

Particles

Although the Universe is very big it is made up of very small particles.

Forces

The particles are stuck together by the 4 forces of nature. Gravity is one of these forces.

Gravity

is a weak force, but is the most important one in terms of the structure of the Universe. It works over extremely long distances & is always attractive, that means it always pulls other things towards it.

Elementary Particles

are the smallest things you can get. They stick together and form **atoms**.

Elements

however, are the different types of atoms. There are about 92 different natural elements. The most common element in the Universe is Hydrogen.

The Universe

The Universe is made up of 100 billion galaxies. The galaxy we live in is called the Milky Way. The Milky Way has 200 billion stars in it. Each star has its own solar system, where the star is orbited by planets, moons & asteroids. Our solar system has 9 planets, of which Earth is one. The other planets, in order of distance from the Sun are Mercury, Venus, Earth, Mars, Cyres, Jupiter, Saturn, Uranus, & Neptune. There are also 4 dwarf planets: Pluto, Haunea, Makemake, Eris.

Everything

Everything you see is made of different combinations of Elements stuck together. The Universe is Everything there is & it stretches far beyond what you can see.

