What is the universe?

Every physical thing that we can see; the Sun and Moon, planets, asteroids and comets, stars, galaxies, etc. Mostly *hydrogen* (75% H), a lot of *helium* (23% He), and a much smaller amount of heavier elements like carbon (C), oxygen (O), and nitrogen (N), about 80 billion galaxies, 60 sextillion (6 x 10^{22}) stars, and 843 identified exoplanets.

How big is the universe?

It is unknown, but the farthest we can see is light coming from behind the most distant objects we can discern. This "particle horizon" is 46B light years distant. There is no reason to believe that we are in the *middle of the universe*, so it could be infinite.

What is the shape of the universe?

It is unknown, but the physics of the observable universe suggests that it is flat in a sense. It is a matter of intense interest in mathematical physics and physical cosmology.

Where did the universe come from, and when?

It is unknown, but everything we see is expanding away from us, and away from every other thing, at a rate of 74.3 (km/sec)/Megaparsec – the Hubble constant (the speed in km/sec of a galaxy 3.26M light years away). It appears to be at least 13.7B years old.

What is our connection to the universe?

Humans are connected to the universe by the light and other radiation from distant objects, and we are apparently composed of similar stuff; approximately 60% H, 26% O 11% C and 2% N with a small amount of metals and heavier elements.

object	distance	units
Moon	1.3	light seconds
Sun	8.3	light minutes
Mars	14	light minutes
Jupiter	44	light minutes
Oort cloud	1	light year
Proxima centauri	4.2	light years
Center of Milky Way	51K	light years
Andromeda Galaxy M31	2.5M	light years
Virgo cluster	60M	light years
Particle horizon	46B	light years

Further Reading: Big Bang, Composition of the human body, Earth's location in the universe, Exoplanet, H2G2, Hubble constant, Light year, Local Group, Mathematical physics, Particle horizon, Physical cosmology, Redshift, Speed of light, Spectroscopy, Supercluster, Universe.