Learning Outcomes

1. Light Years
2. Build a Rocket
3. Fire the Rockets.

Light Years

# What is a light year?

A light year is the distance light travels in one year.

# What formula would you use to calculate the light year?

$$v=\frac{d}{t}$$

$$d=v×t$$

# Calculate the length of a light year

Speed of light in air = 3 ×108 m/s

$t$= 1 year = seconds

The next nearest star is

The sun's closest stellar neighbours are three stars in the Alpha Centauri system. The two main stars are Alpha Centauri A and Alpha Centauri B, which form a binary pair. They are an average of 4.3 light-years from Earth. The third star is Proxima Centauri. It is about 4.22 light-years from Earth and is the closest star other than the sun.

The Large and Small Magellanic clouds were thought to be the closest galaxies to ours, until 1994, when the Sagittarius Dwarf Elliptical Galaxy (SagDEG) was discovered. In 2003, the Canis Major Dwarf Galaxy was discovered - this is now the closest known galaxy to ours!

The SagDEG is on the other side of the Milky Way from the Sun, about 70,000 light years away. It is 50,000 light years away from the centre of the Milky Way - it is so close to us, that some of the SagDEG's stars are actually in the outermost regions of the Milky Way!

The Canis Major Dwarf Galaxy is only 25,000 light years from the Sun, and 42,000 light years from the Galactic center. It too, is well-hidden by the dust in the plane of the Milky Way - which is why it wasn't discovered until recently.

The Milky Way (our galaxy) is 105,700 light years in diameter