

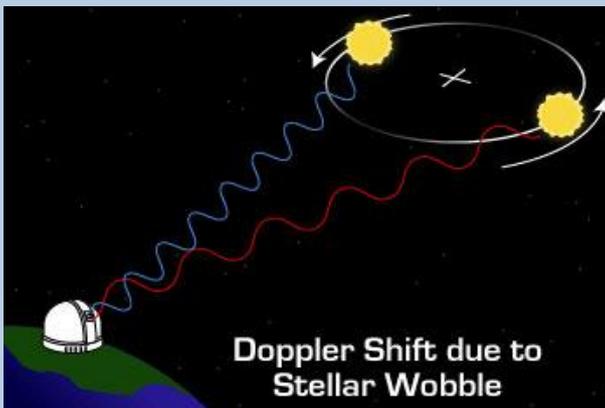
Exoplanets Factsheet

What is an exoplanet?

An exoplanet is any planet which is outside our own solar system – i.e. not orbiting our own star, the Sun.

Have we found any?

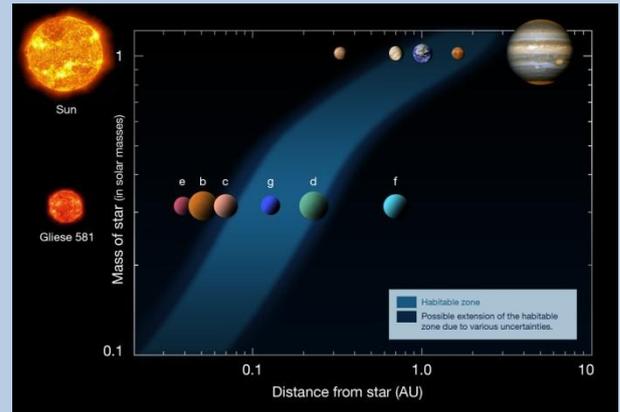
Yes - about 700 exoplanets have been discovered in our galaxy, and there are estimates that there are at least 50 billion of them in the Milky Way alone. The easiest exoplanets to find are massive Jupiter sized ones that orbit close to a star – this is because we can look at the gravitational effect of the planet makes the star wobble.



Other methods of detection include the transit method: the planet blocking some light from the star; and gravitational microlensing: gravity bending light around the exoplanet.

The “Goldilocks Zone”

The exoplanets that get astronomers most excited are those in the so-called Goldilocks, or habitable zone: not too hot, not too cold but just right for life. This is a narrow band around the star where liquid water can exist.



(image courtesy of Wikipedia)

ACTIVITY

Equipment: A handful of dry rice grains, plasticine, a ruler and a calculator.

Exoplanets are so hard to discover mainly because they are so far away. This activity gives an idea of some of the vast distances in space. Take two lumps of plasticine: one representing the Earth and the other, the Moon. Separate these by the length of 4 grains of rice (so that 100,000 km = length of 1 rice grain). Now measure the length of the four rice grains. Complete the table by calculating how many rice grains you would need to reach the objects listed in the table, and how far that is on your scale.

Distance from Earth to:	In reality (thousands of km)	In Rice Grains	Length rice grains end-to-end
The Moon	384	4	
Mars	78,000		
Sun	150,000		
Pluto	5,900,000		
Sirius (nearby star)	81,000,000,000		

You should find that Sirius is about the distance from the UK to America. Imagine trying to see a light wobbling from that distance!