Unit 2 Watch this space …

Video script

Our planet belongs to a solar system which is one of around 200 billion others in the Milky Way galaxy. How many galaxies there are in the universe no one knows, but it's safe to assume that they number in their billions. Where once we thought ourselves to be the centre of all things, we now realise that our planet is just a tiny speck in a universe so large that we can barely comprehend it. One consolation – for some at least – is that the scale of the universe raises the possibility of there being intelligent life on other planets.

Such a possibility has fascinated scientists for centuries, and since the early days of radio we have been picking up signals from the cosmos and analysing them for signs of intelligent life. Once, in 1977, the Ohio State University Radio Observatory detected a signal from outer space that stood out from the rest, and which many people believe may have come from extraterrestrials. When the astronomer Dr. Jerry Ehman first saw the signals presented as data on a print-out, he wrote one word in the margin. Afterwards, scientists repeatedly searched the same patch of sky hoping to see further signs of the 'Wow! signal', as it became known, but nothing was ever found. The search, however, continues.

This is the Arecibo Observatory in Puerto Rico. With an antenna over 300 metres in diameter, it is the largest radio telescope in the world. The problem for scientists is the amount of information to analyse. The receiver picks up hundreds of thousands of radio signals per second, and the computing power needed to read each signal is far beyond the capabilities of any individual machine. It seemed an impossible task until 1999, when the SETI@home project began.

SETI@home uses the ordinary desktop computers of millions of volunteers to analyse every piece of data from the Arecibo Observatory. Once the software is installed, it will run in the computer's downtime, like a screensaver. This means that anyone with a computer can take part in the search for alien life, without actually having to do anything themselves.

Volunteers are sent a piece of data from a small patch of sky. Their computers then spend a few days, during the times when they are not using it, analysing the radio signals from that data, looking for anything that could be evidence of intelligent life. The results are sent back to a research institute in California, then the data from a different patch of sky is sent and the process begins again.

In this way, millions of people are helping scientists to achieve the impossible dream of reading the universe. The volunteers' names are attached to each piece of data, so if signs of life do emerge in a patch of sky analysed by your computer, you will forever be associated with the first contact with aliens.

To date, over five million people have signed up for the SETI@home project, combining to make the biggest supercomputer the world has ever seen, and donating thousands of years-worth of computing time in the process. And while the SETI@home project hasn't yet produced evidence of intelligent life, there is still a huge amount of sky to analyse. The possibility remains; they could be out there, and it could be you who finds them.