SCIENCE TEACHER.IE

Modern star gazers - literacy task

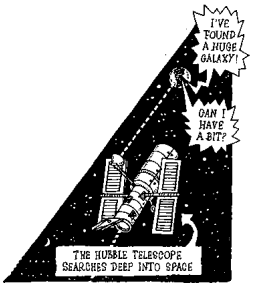
What is out there? Galaxies, asteroids, comets and stars

In 1929 US astronomer Edwin Hubble (1889-1953) turned the universe upside-down. Well- not literally, but he certainly changed the way scientists see the universe. He noticed that no matter in which direction you look, the galaxies – the vast clusters of stars that make up the universe – are speeding away from us.

Of course – this could mean that the aliens just don't like us, but Hubble correctly reasoned that the universe was getting bigger, just like a balloon when you blow it up. And if the universe is getting bigger then it stands to reason that it once was tiny. Hubble said that the universe started with an expansion (known as the big bang),and has been growing ever since. He became famous and mixed with film stars and so maybe his head was expanding too?

Tremendous telescopes

Since Hubbles's day telescopes have got even more powerful. Today the biggest telescopes in the world are the Keck Telescopes at Mouna Kea, Hawaii. Each telescope picks up light from giant mirrors ten meters across. And there is even a telescope in space; the Hubble space telescope was launched in 1990-and no prizes for guessing whom that's named after. And what's more, in the 1930s astronomers got a new kind of telescope.



Probes and planets

Ever since the 1960s scientists have been sending out space probes to photograph other planets- for example, probes actually landed on mars in 1976 and again in 1998. And in 1969, humans first walked on the surface of the moon.

Today, scientists know far more about our neighbouring planets, and in the 1990s, they even began to find other planets circling distant stars, just like the planets in the solar system circle the sun. Galileo would have been gobsmacked, but that's not all.

In the 1970s, astronomers discovered black holes. These are stars that have burnt out and collapsed in on themselves under the power of their own gravity. This gravity is so strong that even light can't escape from then. Although the astronomers couldn't actually see the black holes, they could detect x-rays given out by gas as it's sucked into the hole.

British scientist Steven Hawking did some of the most interesting work on black holes. For example, in 1971 he used maths to calculate that, there must have been tiny black holes in the early stages of the big bang. And in 1974 he found, again by using maths, that black holes can lose heat. by then he was really warming to his subject, ha ha.

Bet you never knew!

Hawking is disabled by a muscle-wasting disease and can't move from his wheelchair. After another illness, surgeons had to cut out his voice box and now he can't talk. Instead, he types words into a computer and these are either displayed on a screen or spoken by a machine called a synthesiser which turns the computer code into sounds. Despite this, Hawking is world famous, the author of best-selling books, and has even starred in a pop video and an episode of Star Trek.

Questions

1. Name the most influential Scientists in the discovery of what's out there in space
2. Explain why Hubble concluded that the Universe was once really small.
3. Describe what a black hole is.
4. Why is Stephen Hawking's work so influential?
5. Would you build more telescopes and carry out more research into Space? Explain why