

# World Space Week 2020:

## 'Satellites Improve Life'

World Space Week is an annual celebration of space and technology which runs from the 4<sup>th</sup> October to the 10<sup>th</sup> October. The theme of the event for 2020 was 'Satellites Improve Life'. Satellites play a vital role in our modern lives and, whether we realise it or not, much of what we do in a day relies on satellite technology.

### What Is a Satellite?

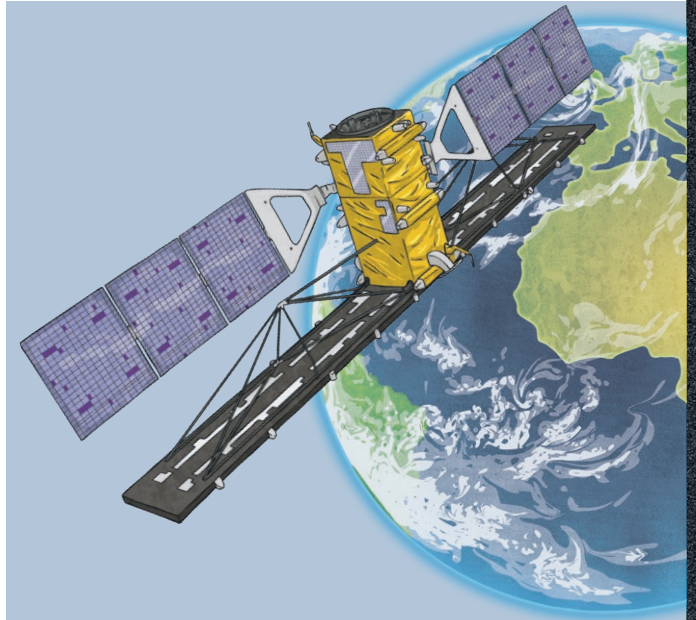
Satellites are objects that **orbit** planets and stars in space. Satellites can be natural, such as moons and rocks or they can be humanly-constructed (artificial). They can be used for communication or to gather useful information.

The first artificial satellite, Sputnik 1, was approximately the size of a large beach ball and was launched in 1957. Artificial satellites come in a variety of shapes and sizes but they can usually be identified by their large solar panels and an antenna. Many modern satellites create power by using solar panels to convert sunlight into electricity. A satellite's antenna transmits information to and from Earth.

Satellites are positioned hundreds of miles from the Earth's surface. They need both gravity and speed to be able to stay in orbit and some can travel at around 17,000 miles per hour.

### They Watch Over Our Planet

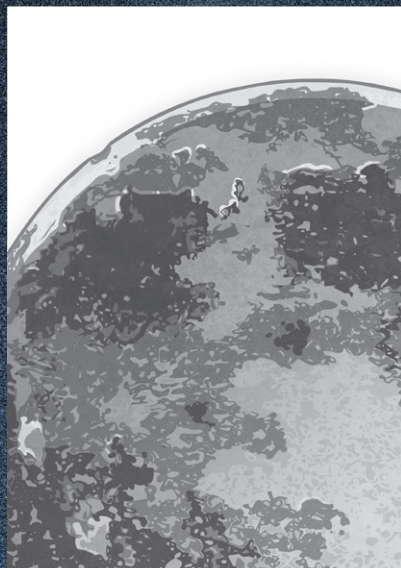
Weather satellites track weather patterns and this information is then used to create weather forecasts. This helps us to be prepared for what to expect when we step outside each day.



### Why Are Satellites Important?

Satellites transmit information back to Earth which can be used in countless different ways, many of which we may not even realise. For example, online mapping tools use satellites to allow us to see most places in the world in 3D.





By monitoring the planet, satellites can also warn us of upcoming natural disasters. Because of this, people now have more time to prepare for potential hurricanes, volcanic eruptions or flooding.

Furthermore, satellites tell us a lot about climate change; they closely monitor any changes to the ocean and to **glaciers**.

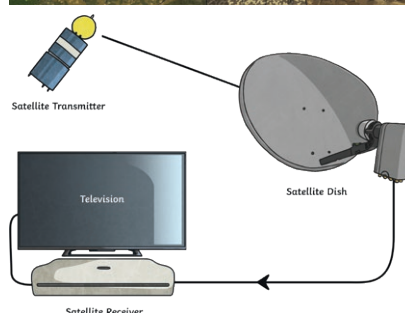
In 2013, satellites unexpectedly detected approximately 66 trillion gallons of water beneath the ground in Kenya: a country which suffers from many droughts.

### They Keep Us Connected

Satellite phones can be used to make phone calls from almost anywhere in the world. This means that they are vital in helping people to communicate when mobile phone networks are either overloaded or unavailable, such as in war zones or after natural disasters.



One global company is even planning to put several satellites into space to provide the first worldwide broadband service!



### They Keep Us Entertained

Satellite dishes, which are a common feature of many modern homes, are designed to receive signals from satellites in space. These signals are then converted by a receiver box into programmes that can be watched on television.

### They Help Us to Get Around

Satellite navigation systems (commonly known as 'satnavs') were first used in cars in 1996. Satellites play a crucial role in helping us to navigate to where we need to go without the need for printed maps. GPS (Global Positioning Systems) use information from satellites to help us to reach our destination. Many mobile phones now have mapping apps which use GPS.

### They Improve Our Knowledge of Outer Space

Before space travel, scientists were limited to telescopes or the naked eye to explore the universe. The Hubble Space Telescope — a scientific satellite launched in 1990 — has discovered and photographed countless new galaxies and moons and has enabled humans to make many important scientific discoveries.

There are over 2,000 satellites orbiting the Earth (including many which are no longer being used). Satellites can now be launched at a much lower cost than ever before so this number is sure to continue to increase as people find new and exciting ways to use satellite technology.

### Glossary

**antenna:** A metal rod or wire that sends or receives signals.

**glaciers:** Large areas of ocean ice that can float around the Earth's poles.

**orbit:** To repeatedly travel around a star, a planet or a moon.