

Antennas and satellites

Antennas

Antennas (also called “aerials”) are devices that can transmit or receive electromagnetic waves. As transmitters, they send radio-frequency signals that are then converted into electrical signals by a receiver; as receivers, they take electric signals from a transmitter and transform them into radio-frequency signals.

Antennas are fundamental in any type of equipment that transmits or receives signals using radio frequency waves, such as radio and TV broadcasting equipment, radars, **handheld transceivers**, Bluetooth-run and wireless devices, and satellites. Antennas have different shapes and dimensions: some of them are iron pylons, some are in the form of cables, others are directly embedded into a device, as in smartphones. Antennas used for satellite communications have the shape of a dish.



to foresee: *prevedere*
handheld transceiver: *ricetrasmittente palmare*
to host: *ospitare*
melting: *scioglimento*
outer space: *spazio cosmico*

Satellites

The word “satellite” mainly indicates anything that orbits around a planet or a star. Some of them are natural satellites, such as the Moon; however, when we talk about satellites we are usually referring to man-made artificial satellites that are launched into space for specific purposes.



A satellite can be described as a kind of spaceship containing cameras or other scientific equipment- to collect information- a computer and solar panels to collect energy from the Sun.

Satellites are sent into orbit to carry out different tasks, such as:

- take pictures or collect data about the Earth’s surface: this kind of information is very important for scientists to study phenomena such as climate change, as satellites can register the temperature of the oceans, the **melting** of glaciers and so on;
- monitor the weather, detecting information that can help **foresee** hurricanes or storms or simply forecast the weather;
- use maps on smartphones or in cars to find directions using GPS (Global Positioning System);
- send images and sound to remote places in the world, through TVs or mobile phones.

The biggest satellite in orbit today is the International Space Station (ISS), which **hosts** a group of astronauts who live onboard for six months at a time and conduct experiments in **outer space**. Satellites are sometimes visible from the Earth: they look like a very small light travelling across the sky in a straight line.

Adapted from: <https://www.youtube.com/watch?v=03pZdYVacaM>

1 Answer the questions.

1. What is an antenna?
2. What are the two functions of an antenna? Briefly explain them.
3. What are the different forms that an antenna can have?
4. Why is it important to collect data about the Earth?
5. What is the International Space Station?
6. Who does the ISS host?

2 Complete the sentences with a word from the text.

1. Another name for an antenna is an
2. Antennas are also used for radio and TV
3. Bluetooth-run and devices also use antennas.
4. communication antennas have the form of a dish.
5. The Moon is a satellite.
6. An artificial satellite usually contains a camera, a and solar panels.
7. Satellites are used to collect about the Earth, monitor weather, for GPS maps and TV broadcasting.
8. Artificial satellites can be from Earth.