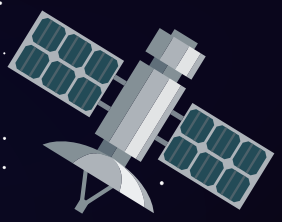
SATELLITES DOING SCIENCE



Helping us learn

To build, launch, and operate a satellite you need a lot of scientific thinking, work, time, and money. But in return satellites provide us with lots of information that scientists use to do research. Some satellites study the weather, others examine Earth's surface, and others look at stars and planets. The biggest human-made satellite is the International Space Station, where teams of astronauts live and perform many different experiments.

Satellites can have many different parts depending on what sort of research they're doing. A satellite with a camera might take pictures of the surface of Earth, while a satellite with a telescope would be more useful for looking at deep space. There are satellites that measure temperature, light, and even earthquakes. In this experiment you will use your imagination to think about how satellites help us collect information and solve problems.

You will need

- This activity sheet with the list of topics below
- Some pens or pencils to write with
- Some paper to write on
- Your imagination, and maybe the imaginations of some science buddies to help

The Experiment

1. Pick a topic from the list below
2. Use your imagination to think about how a satellite would help people learn more about the topic
3. Write your ideas down on the paper
4. Draw a picture of your satellite and the tools it would need to do its job
5. Share your ideas with your science buddies and ask them if they have any ideas that would make your satellite even better!

Space exploration

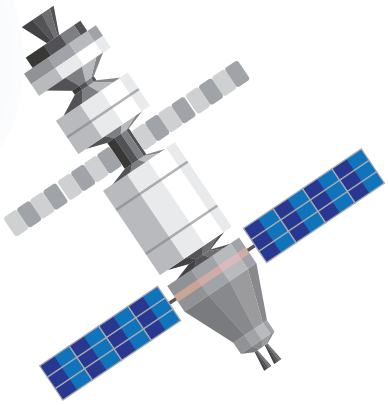
Archaeology

Bushfires

Oceanography

Farming

Planetary science



Questions to think about

- What are some government departments or organisations that might be interested in your idea?
- Building satellites costs money. How would you persuade these organisations to pay for, build, and launch your satellite?
- Can you think of any other topics that satellites could help us learn more about?

Some more information

Research satellites not only teach us about our own Earth, they are also used to learn about other planets, stars, and galaxies. The Hubble Space Telescope is one such satellite. While it's orbiting, it looks out at the Universe and sends images back to Earth for scientists to study. The images are much clearer than those from telescopes on Earth because they're taken from above Earth's atmosphere.

Sometimes the satellites work together in groups to collect information. One such group is called the 'Afternoon Train' or the 'A-train' for short. These satellites follow each other in a line and study Earth's atmosphere. Because the satellites are so close together, they can examine one area at the same time and gather lots of data.

Since satellites are so good at gathering information, they are sometimes used to investigate natural disasters. One example is when people wanted to know how the Gospers Mountain bushfire, which started in October 2019, turned into a 'megablaze' that almost reached Sydney. Using satellite data, people were able to pinpoint where the fire started, and by checking past weather reports, they were able to figure out that the fire was caused by a lightning storm. Satellites were also used to track the fire's spread and help firefighters to tackle the blaze.

Where to find out more

- SciShow Kids: Check Out the Satellites!
- NASA Video: Our World: A-Train Satellites
- Fun Kids: Weather Satellites
- HubbleSite
- Spot the Station