

Wonderseekers

Climate Trackers
Let's build a satellite!

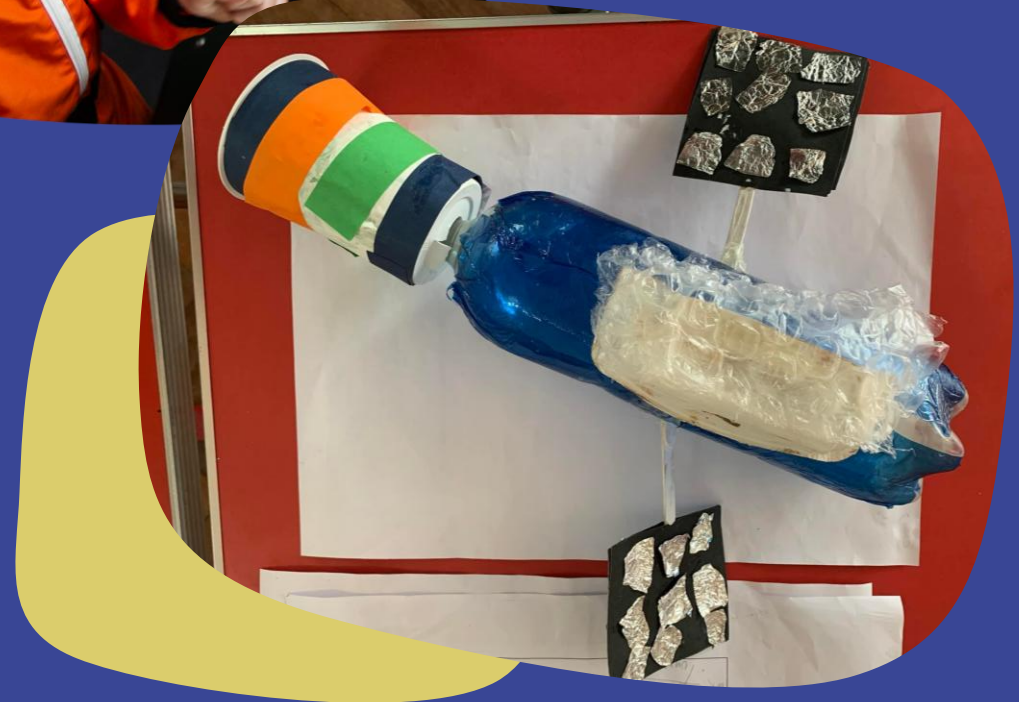


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Satellite project

You are going to build a model of a satellite that will collect information about planet Earth.

First, you have a few things to think about...



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What is a satellite?



What is a satellite?

- A satellite orbits a star or a planet
- Artificial satellites are made by humans. They can:
 - Take pictures of Earth and the universe
 - Collect data about the weather
 - Help us communicate using TV or phone signals
 - Help us navigate using Global Positioning Satellites (GPS)

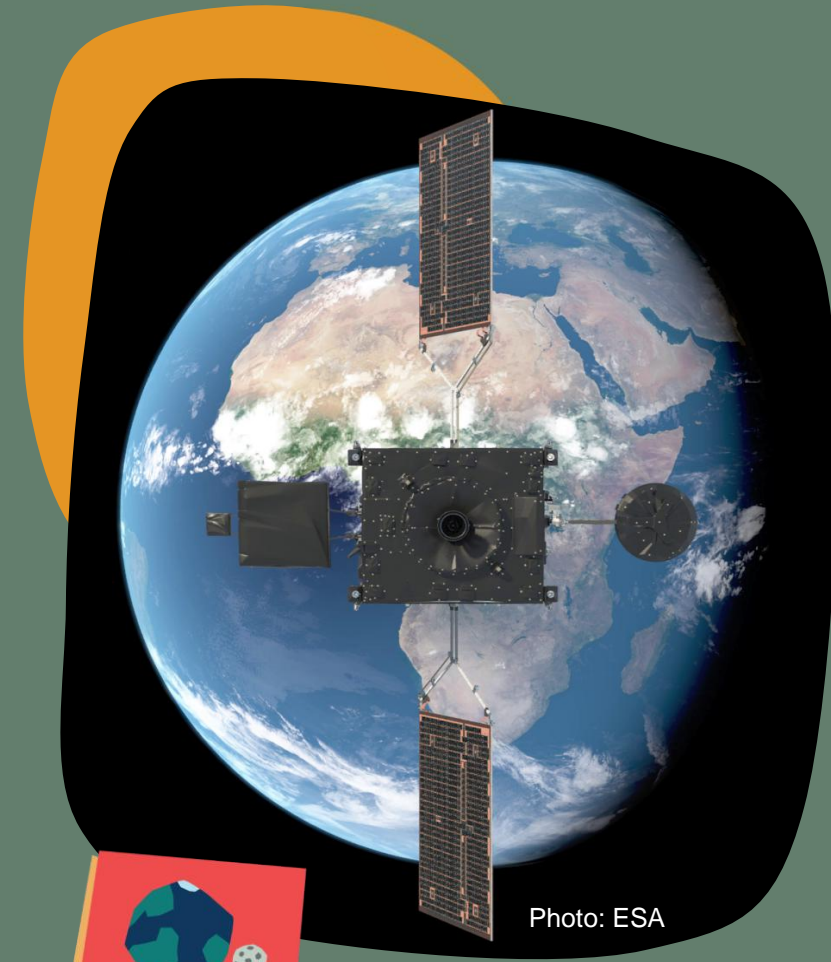
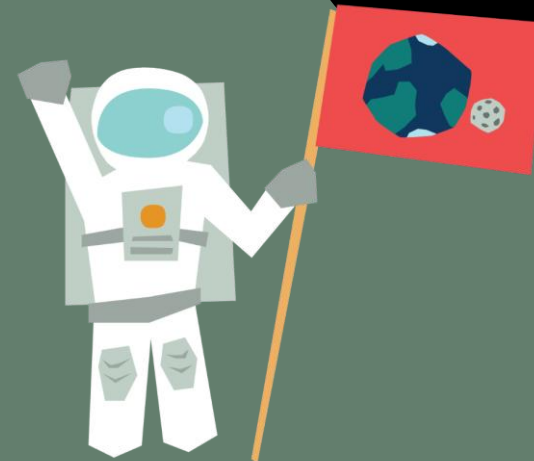


Photo: ESA



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What jobs do satellites do?

Lots of things! Here are a few examples:

- Track animal movements
- Photograph weather
- Use spectroscopy to detect gases
- Sense the amount of water in soil
- Measure ocean acidity
- Record size of glaciers



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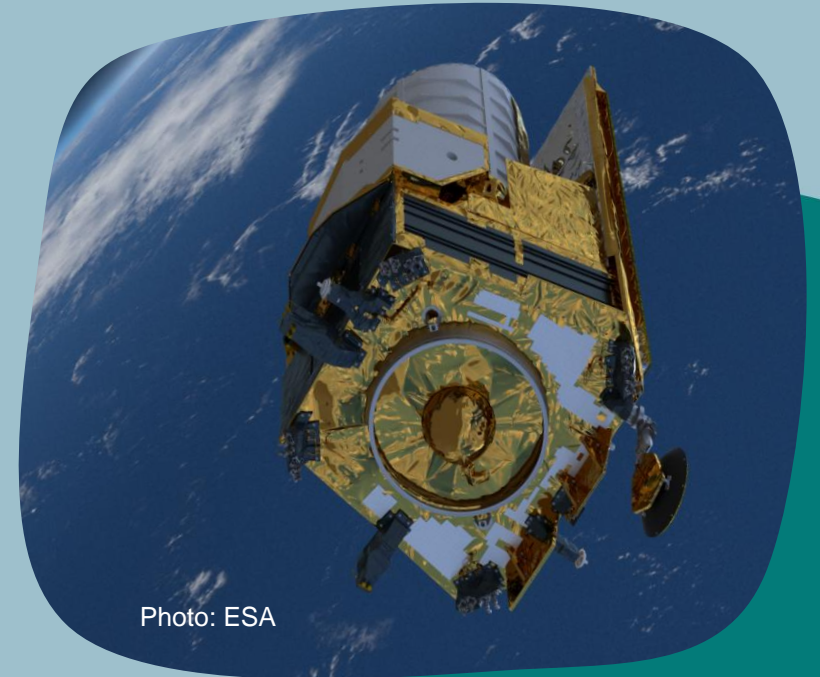
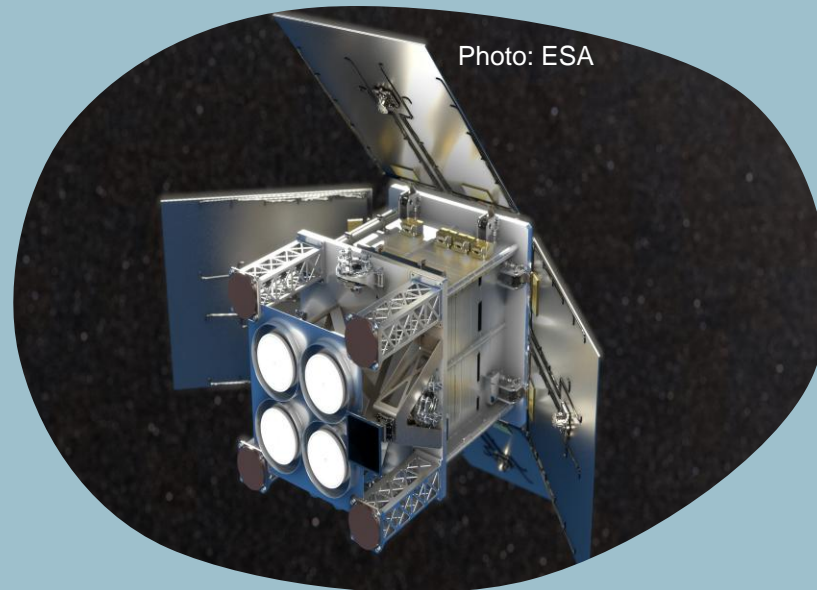
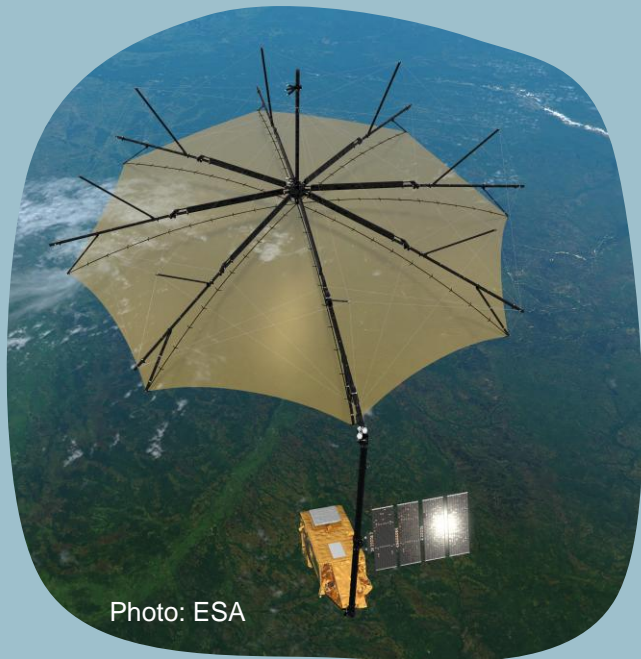
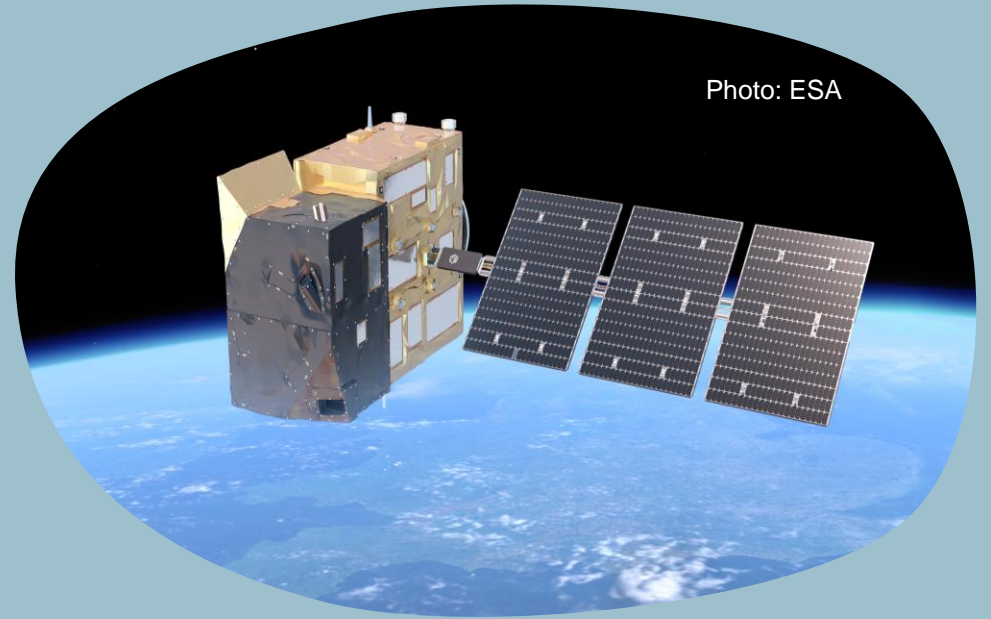
What does a
satellite look
like?



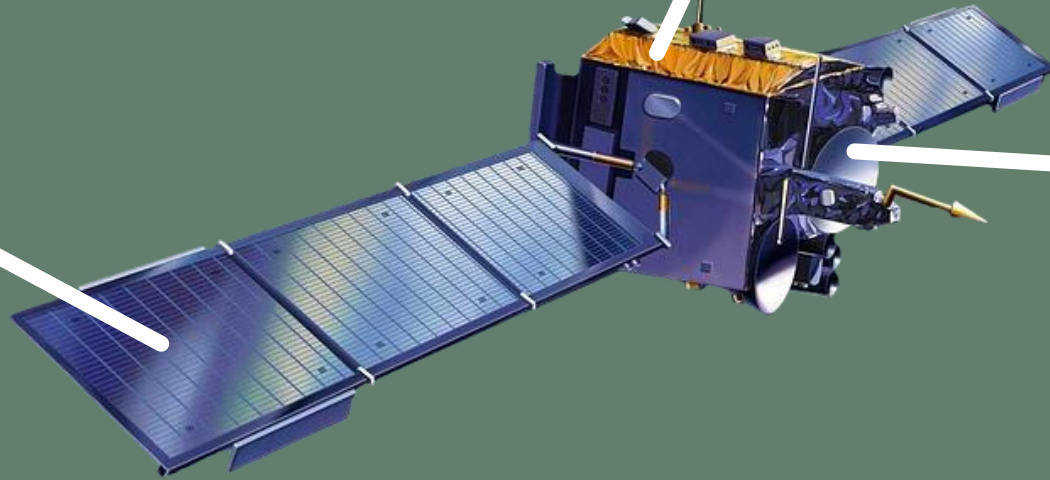
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Examples of real satellites

Satellites come in many forms. Here are a few examples.



Parts of a satellite



Insulating material

This helps the satellite keep cool.

Solar panels

These help power the satellite out in space.

Communication antenna

Sends and receives messages between the satellite and Earth.

Computer

Safely hidden away, the computer manages the satellite's many jobs. Just like your Micro:bit!

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Your
satellite
model



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Now it's your turn!

What will your satellite look like?

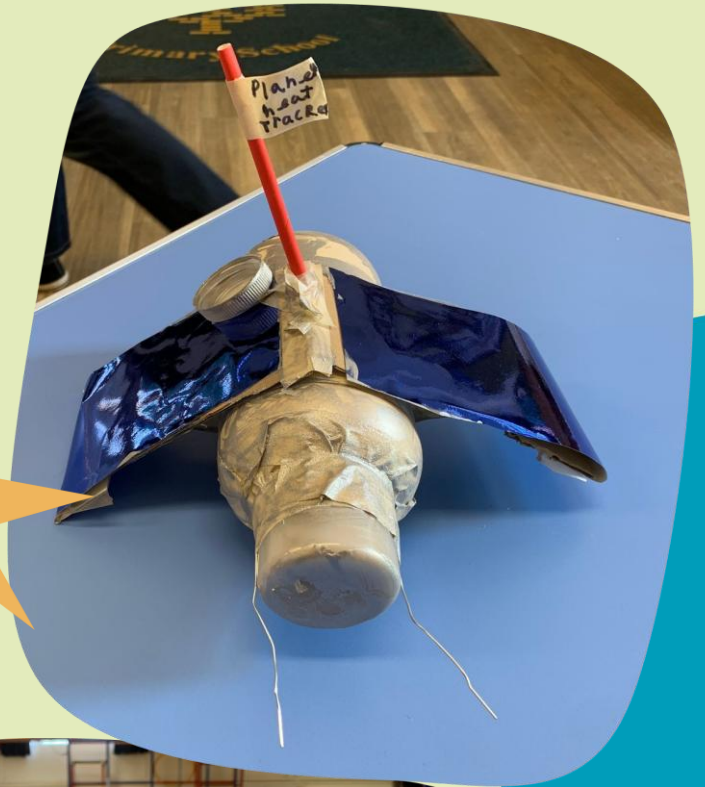
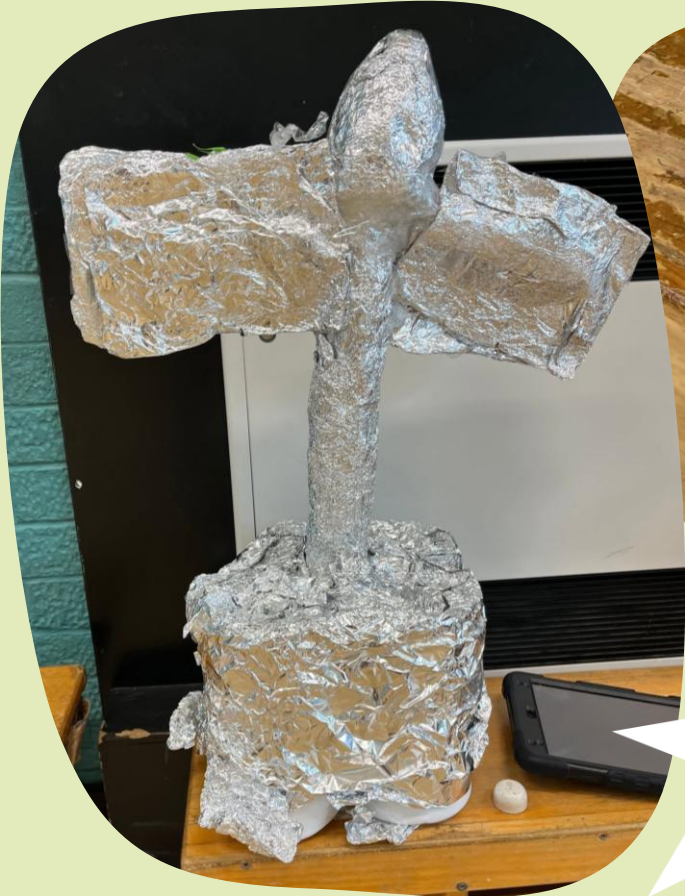
Wonderseekers are asking you to include some specific parts, but the rest is up to you!

So have a think... what do you want your satellite to do?



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Examples of past satellite models



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What should I include?

Your satellites need to have:

- Insulating material
- Communication antenna
- Space for a Micro:bit
- Solar Panels

Your satellite also needs to do at least 1 of these 3 jobs:

- Tracking animals
- Spectroscopy
- Photographing weather



Brainstorming process

You can use the design sheets to help you get started with your satellite.

One sheet has a checklist of all the items your satellite needs.

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The graphic shows a design sheet titled "Wonderseekers My satellite design". At the top left, there is a satellite icon. To its right is a dark blue banner with four yellow stars. A yellow pencil is positioned as if drawing a large, rounded rectangular shape on the white page. On the right side of the page, there is a checklist of satellite parts and functions. At the bottom right, there is a light blue rounded rectangle labeled "Name:". The background of the entire slide is a dark green color with a large orange semi-circle at the top right, resembling a sun.

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My satellite design

Have you included all your satellite parts?

- Insulating material
- Communication antenna
- Space for Micro:bit
- Solar panels

What job is your satellite doing? Pick at least 1.

- Tracking animals
- Photographing weather
- Spectroscopy

What else can your satellite do? Add it to your design!

Name:

Brainstorming process

The second design sheet can help you think about your building materials and your satellite's job.

Hold onto these sheets as you will need them for the rest of the project.

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What will your satellite be made of? List the materials you might use for each piece and sketch a picture.

Solar panels

Communication antenna

Insulating material

What job is your satellite doing? Pick at least 1 and design what it needs to do that job in the space below!

Animal tracking

Spectroscopy/
detecting light

Photographing
weather

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Materials

You will use recycled materials and craft supplies to build your satellites. Here's a few ideas!

- Cereal boxes
- Lolly sticks
- Plastic bottles
- Egg boxes
- Bottle lids
- Coloured card
- Yoghurt pots
- Tin foil
- Plasticine
- Buttons
- Cardboard tubes
- Bubble wrap



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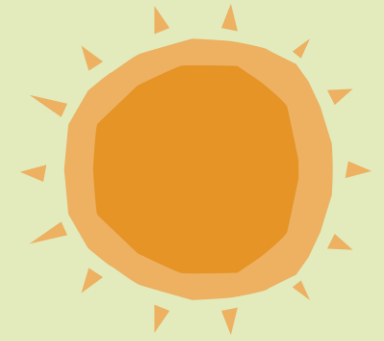
Well done,
you built a
satellite!



What happens next?



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Satellite testing

When you finish your model, it's time to test it out. Your satellite will be will go through 3 challenges:

- 1** Heat lamp – to see if your satellite is protected from the Sun. Can your insulating material keep your satellite cool to beat the heat?
- 2** Micro:bit fit – to see if your satellite's computer has a safe space. Will the Micro:bit stay in place during the satellite's journey?
- 3** Shake table – to see if your satellite is strong. Can it stay in one piece during its launch to space?



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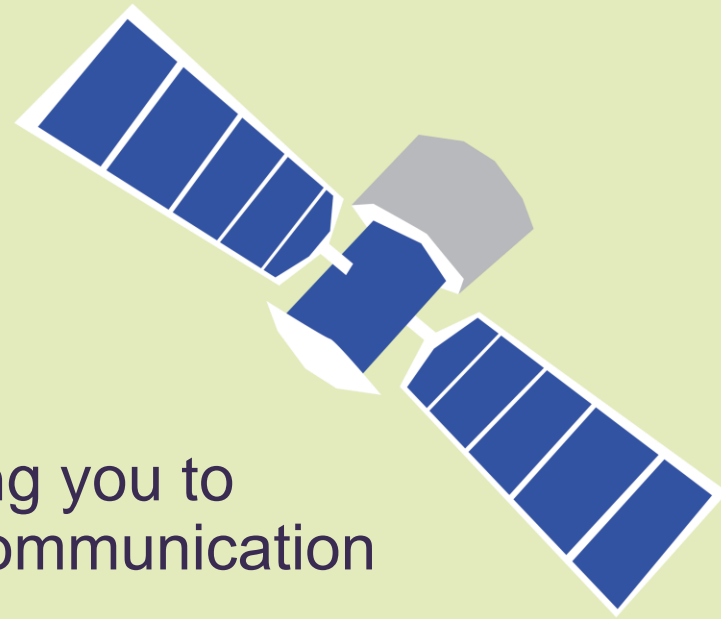
Satellite testing

Don't forget to bring your design sheet!

The Wonderseekers Inspirers will be asking you to point out your satellite's solar panel and communication antenna.

They will also want to hear about your satellite's job! Does it track animals, do spectroscopy, or photograph weather? Or have you created another kind of job?

We want to hear all your ideas!



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Time to celebrate!

The final event will be a celebration at your school.

You can show off your satellite, design sheets, and share your ideas with everyone present.

You will receive a certificate, and everyone will be recognised as an official Climate Tracker!



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Good luck,
Climate Trackers!

