The future of planet Earth is a job for... outer space?

How can you work in space?

They might be 'outta' space, but these jobs have important functions here on Earth. There's a lot more you can do in space than fly to the moon!

You could build a satellite, design a 'space trash' collector, code the software, or monitor climate change...

Activity

For school

For home

Not everyone wants to travel into space, or build a rocket... But that's what space is all about, right?

Not quite! That's just a small part of the space industry. And the good news is, you don't have to be interested in that side of things to get involved. In this activity you'll learn about some of the awesome jobs in space that you can do with your feet planted firmly on the ground.

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Guidance for teachers, parents and guardians

Let's take a look at the UK space industry. During this activity children will look at a variety of space-related job roles and their functions, for example: a satellite designer, mission controller or space debris analyst.

Activity: Match this space job to its role on Earth.

Approximate time: 60 minutes.

Target age: 9-11 year old, KS2.

Specific learning outcomes:

- I can explain why we have a space industry in the UK and list reasons why it is growing so rapidly.
- I can examine and organise new pieces of information.
- I can list some of the different jobs available across the industry.
- I can name reasons why space-related jobs can have an impact on life on Earth.

Activity resources/ materials

- Computer with internet access to watch video material (noted in instructions).
- Activity sheet – one printout per child.
- Pencils and markers.

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Extra guidance for those in the classroom

All activities are focused on raising awareness of the varied careers in the UK space industry and are tailored to a specific age group. The aim is to inspire students towards an interest in further STEAM activities and relevant careers.

Curriculum subjects

- Science: Physics
- Space

This resource will help you to equip students “with the scientific knowledge required to understand the uses and implications of science, today and for the future.”

Some **crossover curricula** links include: History, English and Geography.

Children will engage **skills** such as: problem solving, organising material, hypothesising, working scientifically, written transcription and composition, exploring ideas, using new vocabulary and creative thinking.

Activity resources/ materials

- Projector and computer with internet access – **to show whole class videos** (noted in instructions).
- Activity sheet – one printout per child.
- Pencils and markers – enough to go around the class.
- Please note that children will need to be sat in groups of 2 or 3.

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Instructions

Starter

1. **Set the scene** for the young person/whole group with the following:
    a. Did you know space tourism exists? Normal people have already travelled into space, so it could be you and me next!
    b. Imagine you're hosting a tour on a rocket in outer space, and someone asks "what's so special about space?"
2. Now ask the children to call out ideas and **answers to the following:**
    a. What would you tell them? I already know the moon is made of cheese (not!). So, tell me some interesting facts that you know about space.

Main lesson

1. **Introduce the UK Space Agency** with this short video.
2. On your own/as a whole class, verbally **discuss the answers to these follow up questions** (replay the video if needed):
    a. What do you think the UK Space Agency does?
    b. Can you name some of the ways they help to improve life on Earth?
    c. Can you give a few examples of how we use satellites in everyday life?
3. **Name three common space-related job roles** and ask children to verbally guess what they involve:
    a. **Mission Control** are the brains of the operation who keep the mission on track. Flight control teams of experienced engineers and technicians are on duty seven days a week, 24 hours a day, 365 days a year. They keep a constant watch on the crew's activities and monitor spacecraft systems, crew health and safety as they check every system to ensure operations proceed as planned.

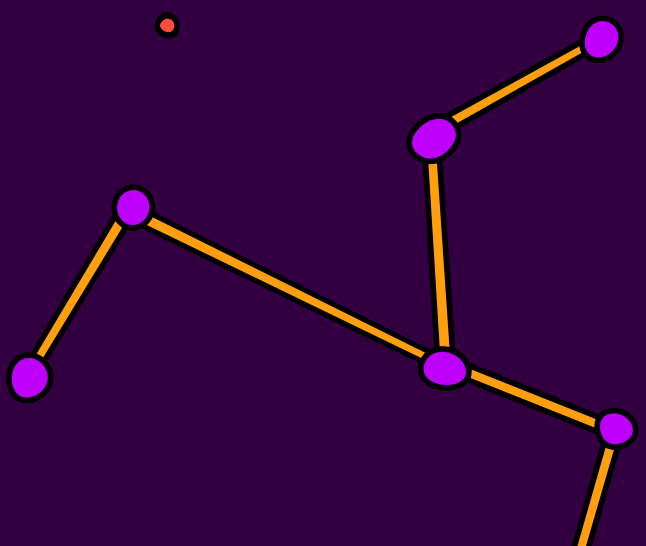
Instructions

b. An astronaut is someone who has undergone specific training to fly into space. Soviet and Russian individuals who have been trained to go into space are called ‘cosmonauts’. Those from China are called ‘taikonauts’.

c. An aerospace engineer designs, tests, builds and maintain planes, spacecraft and satellites.

Activity

1. Following on from the setup, children will now complete the **‘Match this space job to its role on Earth’ activity sheet.**
2. Hand out the sheet and ask children to fill in **Task 1:** name 5 ways we can use space to improve life on Earth. Prompt with a couple of ideas like:
   a. Keeping people safe with GPS.
   b. Monitoring endangered marine animals.
   c. Developing our communication networks to help isolated communities and people to stay in touch.
3. Move onto **Task 2** by getting children into small groups of 2 or 3.
   a. Ask them to read the list of 5 uncommon space-themed jobs, and then the 5 functions (and potential impacts) these have on Earth.
   b. Tell the children these 5 jobs and 5 functions are mixed up and they need to work as a team to match them up.
   c. Once they’ve made up their minds, they can write down their answers.



Resources for teachers or parents/guardians

Here you will find all the links and background information you will need to support you, plus further resources if time/interest allows.

Setup resources

What is the UK Space Agency?

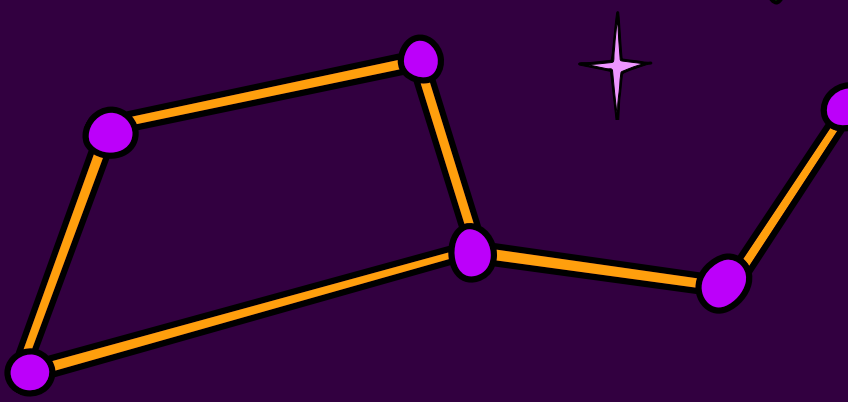
- Use this short UK Space Agency video (2.5 mins) to introduce the Agency and the space industry within the UK.

Common Space-related jobs (the following is for your own lesson preparation):

- Spacecenter Mission Controller has a short and sweet description of how the Mission Control team gets involved in space – from planet Earth!!
- If children are interested they might like to take a further look at the inside of the Apollo Tour's restored Mission Control in Houston, Texas: Apollo Flight Controller 101: Every console explained | Ars Technica which includes the job titles within the team, where they were all located and what equipment they had in the room.
- What is an astronaut? will give you the basics on all things Astronaut. It's also got 10 fun facts at the end... Did you know they have to wear diapers and be able to read Russian?!
- This aerospace engineer webpage offers a quick overview of the job role, what you'll get up to, as well as what it takes to make it.

Answers for Task 2:

1. Astrobiologist = D
2. RAF Space Command = C
3. Weather Data Analyst = E
4. Oceanographer = A
5. Astronomer = B



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Activity sheet

Match this space job to its role on Earth.

Task 1: How can you improve life on Earth?

Name 5 ways we can use space to improve life on Earth:

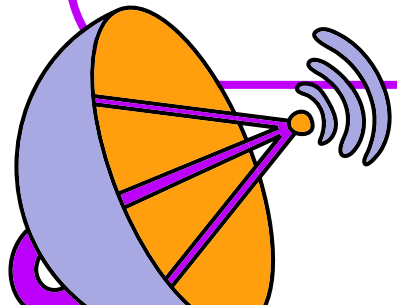
1.

2.

3.

4.

5.



Task 2: Space jobs

Match the job roles to the correct descriptions. They're all mixed up at the moment!

RAF Space Command

70% of the Earth is covered in saltwater. This makes floods, droughts and tsunamis dangerous threats to life on Earth. These people use satellite data to map changes in currents, waves, winds and sea-surface temperature to help predict and prevent natural disasters.

Astrobiologist

They use space telescopes (and also ground telescopes) to help with so many different types of space exploration such as: missions to locate the first ever stars, working out how galaxies and planets are formed, and also identifying which planets might be habitable for humans in the future.

Weather Data Analyst

Performed by people within the military, they work internationally to ensure space activities are done safely. It's their job to make space safe for everyone.

Oceanographer

Is there life in space? These people investigate the conditions on planets (e.g. temperature and gravity) to see if there could be signs of life. They recreate similar conditions here on Earth and conduct experiments to get answers to their questions.

Astronomer

They use data from satellites, ground stations and weather balloons to analyse and monitor the environment on Earth. This information helps people to make smart decisions about things like climate change.