Space Debris

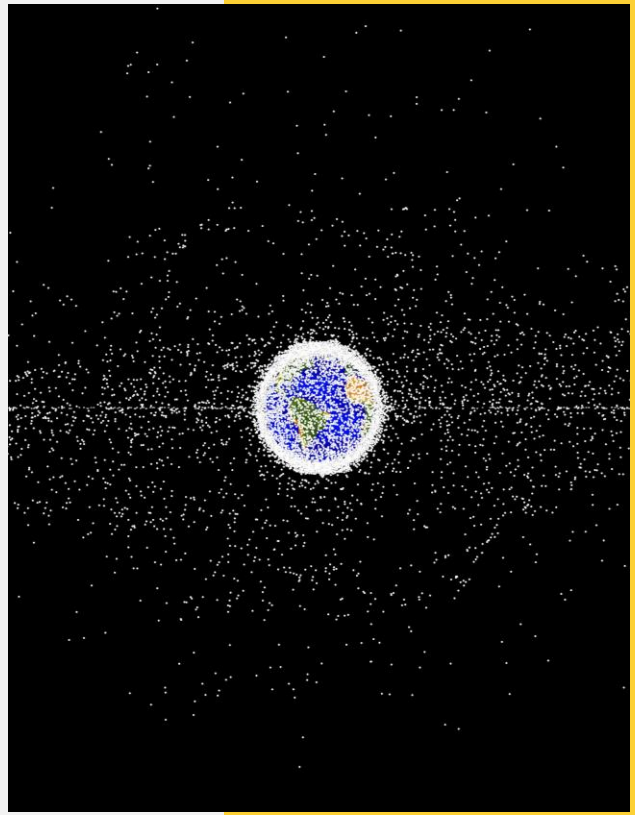

Image credit: NASA

Learning Objectives

Understand what space debris is and why it is a problem.

Recognise how engineers and scientists tackle real-world challenges.

Develop problem-solving, teamwork, and design skills

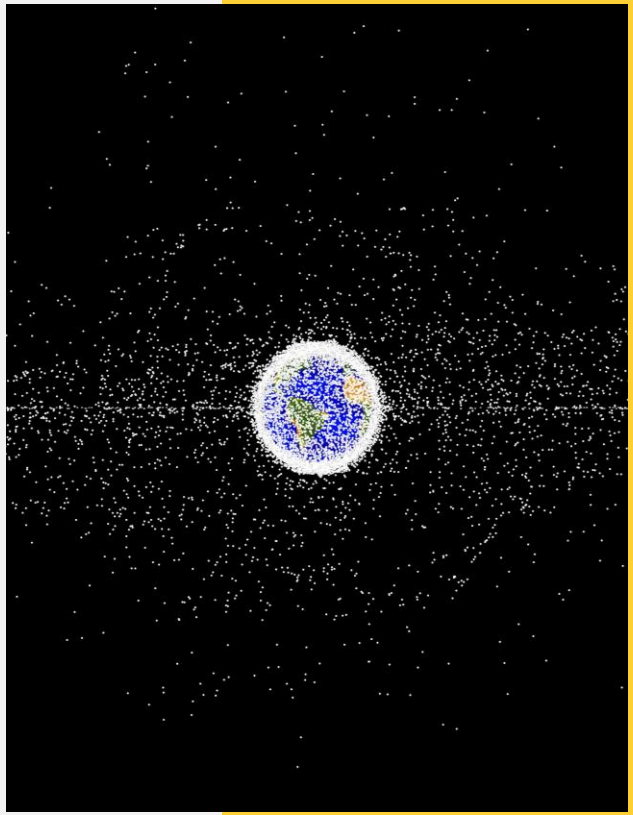

Image credit: NASA

What's in Earth's orbit right now?

There are over 10,000 working objects orbiting around the Earth, including:

- International space station
- Chinese Space Station Tiangong
- Satellite used for:
  - Communication
  - Earth observation
  - Weather monitoring

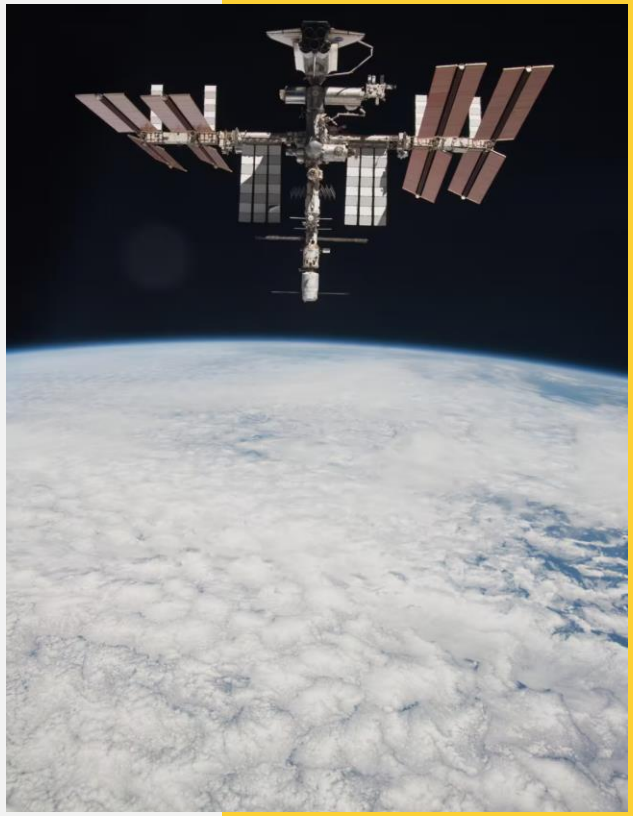

Image credit: NASA

What is Space Debris?

Broken or unused human-made objects in space

- Old satellite pieces
- Rocket leftover
- Fragments from past crashes

They move faster than a bullet – around 27,000 km/h!

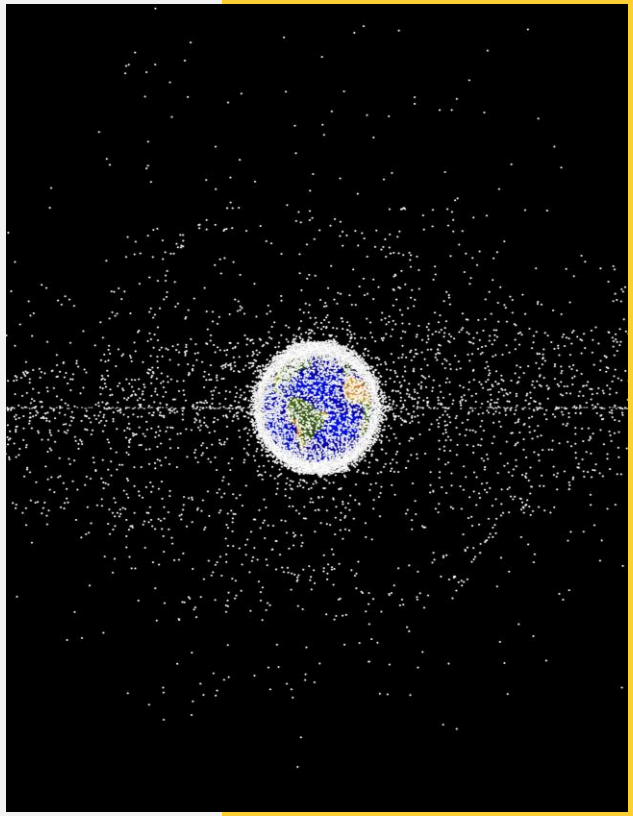

Image credit: NASA

Why is it dangerous?

When objects collide at these high speeds, more debris can be created – like a chain reaction

Making orbits busier and more dangerous

Space debris poses a real threat to satellites, space stations and even humans in space

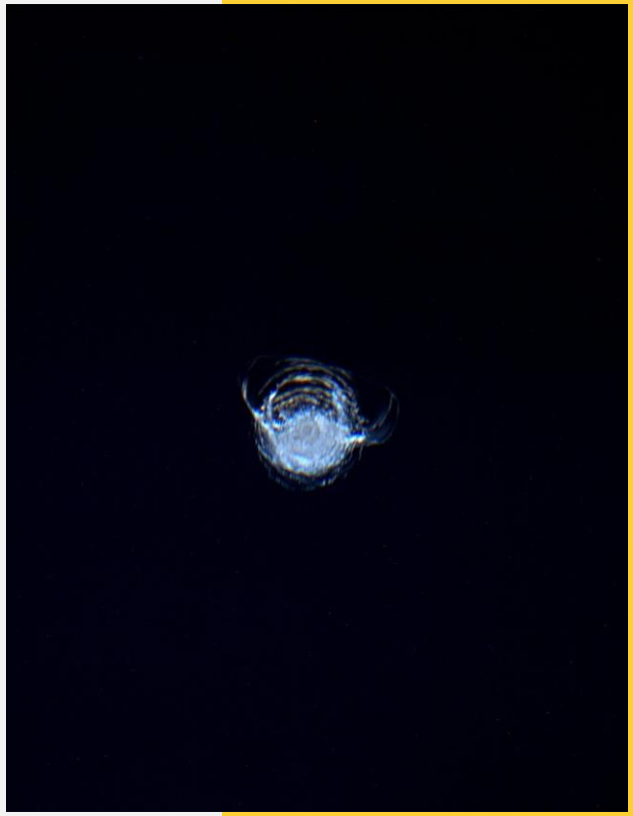

Image credit: ESA

What are space agencies doing?

NASA, European Space Agency (ESA), and UK Space Agency are all making rules about how to safely remove satellites from orbit.

Satellites must be burned up in the Earth's atmosphere when no longer useful.

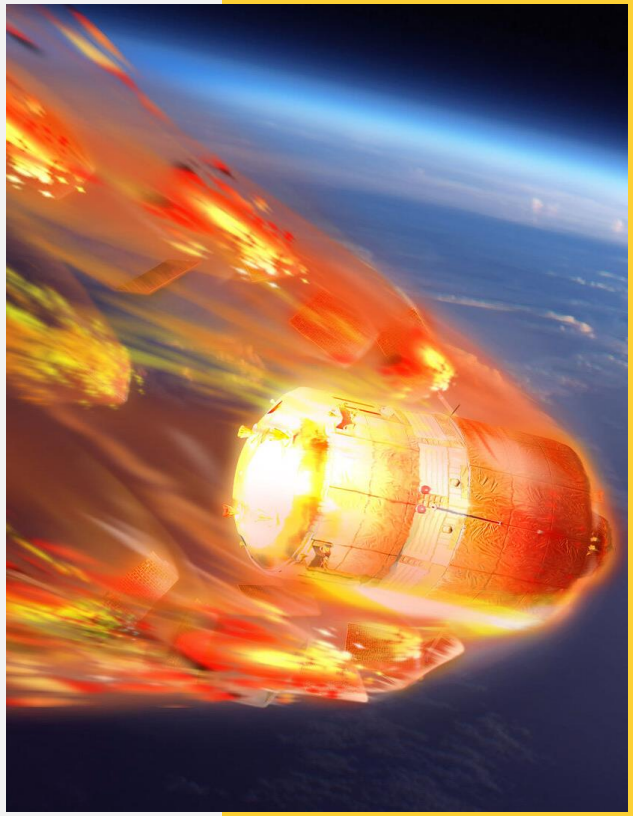

Image credit: ESA

New technology to clean space

Engineers and scientists are using robotics, AI and sensors to detect, track and remove debris.

Companies like ClearSpace and Astroscale are building robot arms and AI systems to grab space junk.

ClearSpace has been selected by ESA to remove a satellite in 2026.

Image credit: Clearspace

How would YOU clean up space?

Image credit: Clearspace