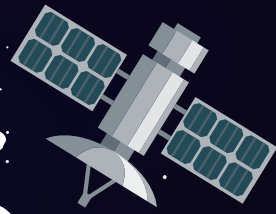


SPACE JUNK



WHAT IS SPACE JUNK?

Space junk is any object that humans send into space but don't bring back to Earth when they're done with it. When there is lots of space junk in orbit, it can cause problems. If something important like a satellite is hit, it could get damaged. It might even break into tiny bits and then we would have even more space junk orbiting Earth.


That is why scientists are working on ways to clean up space junk to protect our satellites and other objects, such as the International Space Station. They are trying out different ideas (like nets and magnets) to knock space junk out of orbit so it falls towards Earth and burns up in the atmosphere. In this experiment you will test some of the ideas to see how well they work.

YOU WILL NEED

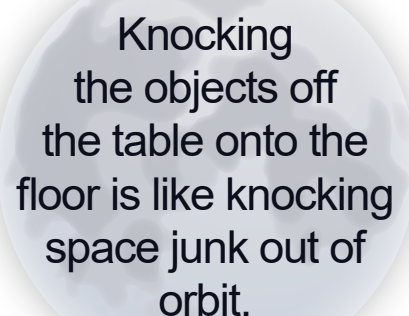
- A ball of string
- A magnet
- A tea towel
- A pair of scissors
- A table
- Some different objects to act as space junk — try paperclips, bottle lids, or nuts and bolts!

THE EXPERIMENT

1. Use the scissors to cut two pieces of string about the length of your arm
2. Tie the end of one piece of string around the magnet
3. Tie the end of the other piece of string around a corner of the tea towel
4. Put the space junk on top of the table
5. Now try to knock the space junk off the table using the magnet and then the tea towel; you're only allowed to hold the string while you do so. No touching!
6. Once you've finished, try answering some of the questions on the next page



The atmosphere is several layers of air that surrounds Earth. It's about 100 km high!



Knocking the objects off the table onto the floor is like knocking space junk out of orbit.

QUESTIONS TO THINK ABOUT

- Which tool was easier for you to use?
- What objects were hard to knock out of orbit? What objects were easy? How are they different?
- Can you think of some other ways to knock the objects out of orbit? Try doing the experiment again with your own ideas!
- Is it better for scientists to clean up space junk, or to stop objects from becoming space junk in the first place?

SOME MORE INFORMATION

Since 1957 when the world's first satellite, Sputnik 1, was launched, humans have been sending all sorts of things into space. Most of these things are not brought back so they end up as space junk.

Scientists estimate that there are over 22,000 pieces of space junk in orbit around Earth. However, that is not counting the millions of tiny pieces that are too small to be tracked, like nuts and bolts, or even lens caps. They travel very quickly and sometimes run into each other.

There have already been cases where space junk has caused damage to equipment. In 2016, a tiny piece of space junk, possibly a bit of metal or a paint chip, left a dent in one of the International Space Station's windows. Luckily, the station has a lot of protections in place, so the astronauts were safe.

Scientists around the globe are trying out different ideas to clean up space junk, including giant lasers. They estimate that their first mission will be ready in 2025.



WHERE TO FIND OUT MORE



▶ [Behind the News: Space Junk](#)

▶ [Behind the News: Space Junk Clean Up](#)

🔊 [Short Wave: Space Junk. How Cluttered Is the Final Frontier?](#)

🔊 [Eyes on Earth: Space Debris](#)

📖 [ESA Kids: Space Junk](#)

📖 [National Geographic: Space Junk Is a Huge Problem](#)