

How to Get Rid of Space Trash

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| Required Annotations | Student-Created Annotations | Summary / Questions / Reflection |
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| Comprehension | Comments |
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Satellites and spacecraft aren't the only things people have put into orbit around Earth. Millions of pieces of orbital debris, or "space junk," are whizzing around above the atmosphere. They pose a big threat to any satellite—or person—we send into space.

Unfortunately, space **debris** is a problem we made for ourselves. It was empty up there before people started launching rockets and satellites. Today, this region is filled with new and old satellites and other launch debris. Most small pieces will slowly fall toward Earth and burn up in the atmosphere. But larger objects will hit the ground, like the piece of a NASA rocket that crashed into the Indian Ocean last November.

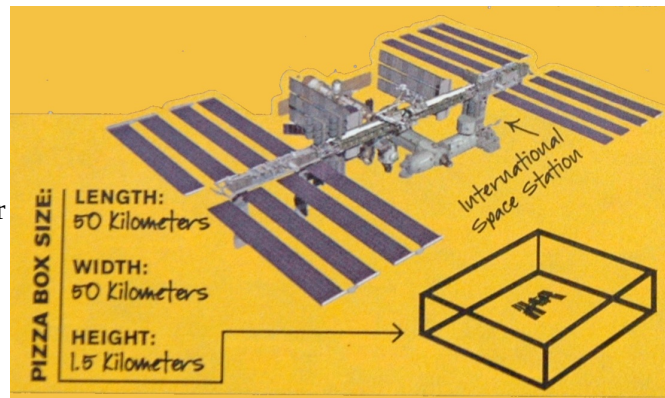
All objects orbit Earth at speeds of 17,500 miles per hour, which means that collisions can be **catastrophic**. That's why NASA and the military work together to track the debris that could threaten the more than 1,000 active satellites in orbit.

Space trash is an especially big concern for the International Space Stations (ISS). The size of a football field, the ISS is the largest satellite in space. "Twenty-four hours a day, it's someone's job to protect the ISS from orbital debris," says Shane Cowen, an **orbital analyst** at Vandenberg Air Force Base in California.

But 95 percent of space trash is too small to be tracked. NASA estimates that more than 100 million pieces of debris are smaller than 1 centimeter. This tiny space junk includes

everything from flecks of scraped-off paint to stray bolts and screws. Unfortunately, most of it is the result of existing space junk colliding and breaking apart into even more **minute** pieces.

The amount of stuff orbiting our planet is constantly increasing. Until we can start getting rid of it, spaceflight will only become more dangerous. Cowen says that "the more objects there are in space, the more chance there is to interfere with GPS and satellite communication."



Protecting the "Pizza Box" -- When tracking space debris, orbital analysts draw an imaginary box around the ISS, which they call the "pizza box" because of its shape. If anything is on a trajectory to hit the pizza box, they must move the station out of the way.

Questions

1. What do you think would happen if a piece of space debris struck the ISS? Back up your answer with specific evidence from the text.
2. What do you think "trajectory" means in the image caption? What context clues help you figure that out?
3. How would you suggest we get rid of some of the space junk currently in orbit?
4. What is ironic about comparing the size of the ISS to a football field?
5. Is this a good title for the article? What might a better title be?

