

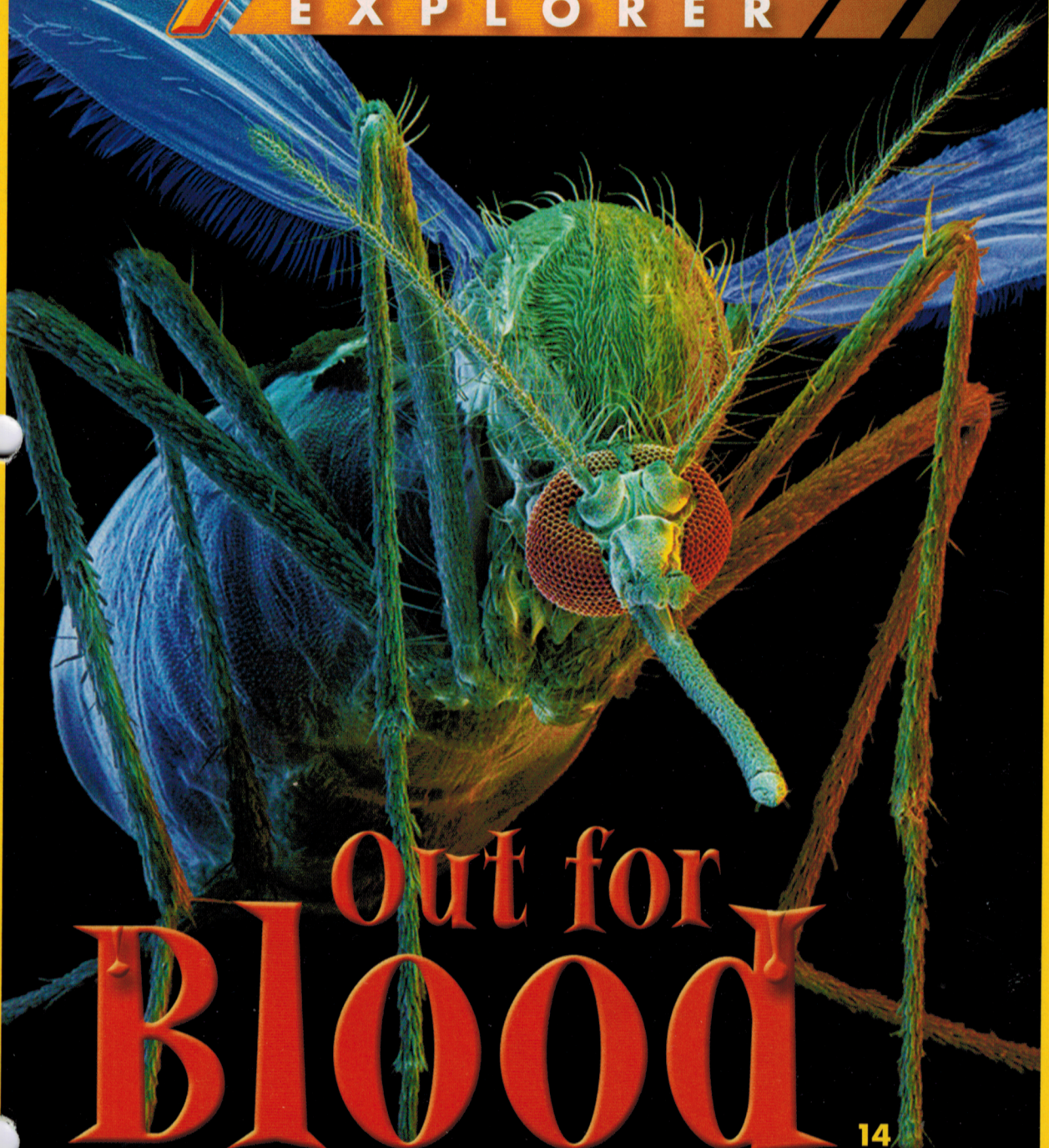
EXTREMEEXPLORER.ORG

OCTOBER 2008

NATIONAL GEOGRAPHIC

Extreme

EXPLORER



Out for BLOOD

14


Animal Intelligence 2

Crime Science 8

Space Junk 20

Reading Strategy: Think of what you know about litter on Earth. Keep that in mind as you read about litter in space.

SPACE JUNK



This painting shows how one artist imagines what the space junk above Earth looks like.



EQUINOX

By Jonathan McDowell

Astrophysicist, Harvard-Smithsonian Center for Astrophysics

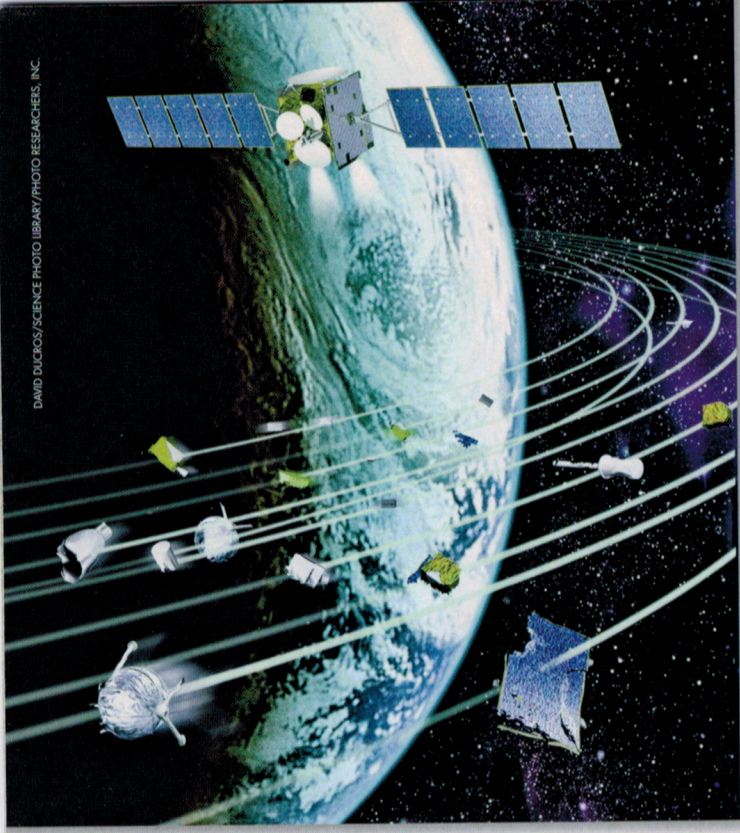
Picture yourself in the future. You are leaving Earth in a spaceship. You stare out the window. Sun reflects off the storm clouds that hover above the planet.

Inside your spaceship, the computers hum. Suddenly there is a loud crack, like a gunshot. Now your ears pop.

You hear a loud hissing sound. That hissing sound is very bad news. You notice a small hole in the wall of your ship. Then you race for the emergency rescue capsule. Your spaceship is the victim of one of space's biggest threats: space junk.

This nightmare hasn't happened—yet.

DAVID DUKKOS/SCIENCE PHOTO LIBRARY/PHOTO RESEARCHERS, INC.



This artwork shows a satellite that is surrounded by orbiting trash. Large pieces of space junk, such as parts of the Skylab space station, sometimes slam into Earth.

SPACE SCRAPS

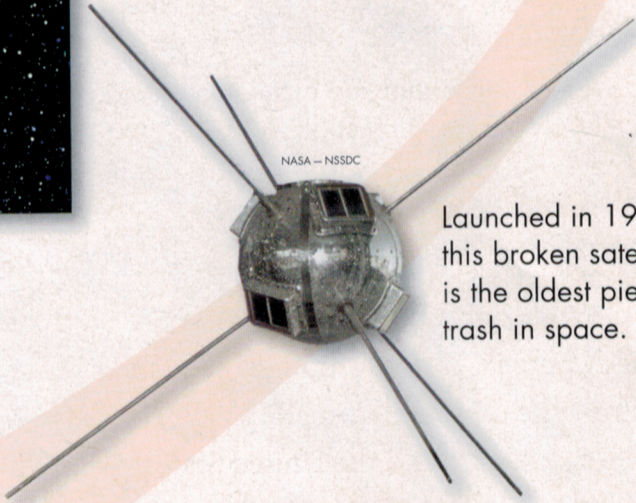
So what hit your spacecraft? It could have been part of an old rocket. It may have been a wrench that flew out of an astronaut's hand. It might have been a piece that broke off a satellite. Those are just a few of the things floating in space. Today, scientists count about 12,000 items. Each is at least ten centimeters (four inches) wide. Countless other bits of junk are smaller.

Out of those things, 900 are working satellites. They send TV and telephone signals around the world. They spy on different countries. They help scientists study space and weather. Everything else is space junk.

IMAGESTATEPHOTOGRAPHY.COM



Astronauts lost several cameras in space. They burned up while falling to Earth.



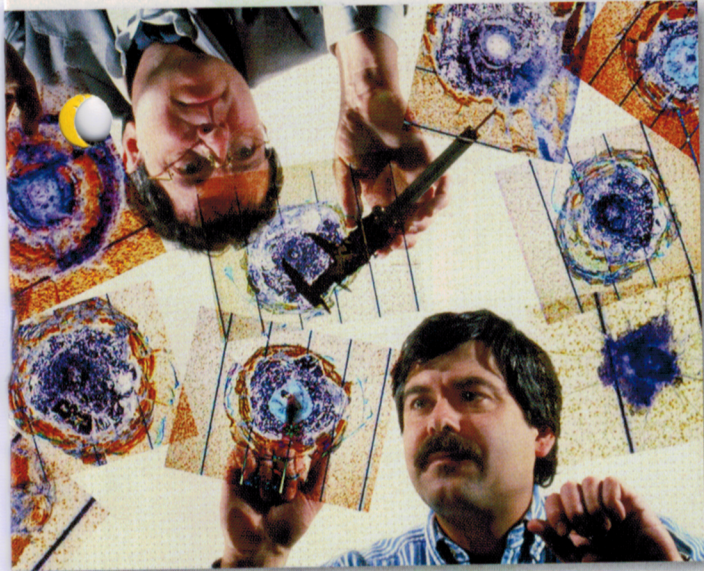
Launched in 1958, this broken satellite is the oldest piece of trash in space.



TRACKING TRASH

Space junk includes satellites that have stopped working, fuel tanks from rockets, and scrap metal from old spacecraft. All that strange, old stuff interests me. Ever since I was 12, I've been learning about trash. I don't mean the trash that lies around your bedroom and makes your parents mad. I mean the trash that's littering space.

I didn't start out studying space trash. I began by learning about every rocket launch I could. I still do. That led me to notice something. People send a lot of stuff into space. Each year, we add to the things in orbit. Some of those things are still useful. A lot is just junk. I try to keep track of all of it.



These scientists are studying pictures of damage to a telescope caused by space junk.

LEFTOVER LITTER

People's littering of space began in 1957. That's when the Soviet Union launched Sputnik, the first human-made satellite. The Soviet Union and the United States raced to be the first to explore space.

Since Sputnik, people have launched 5,000 satellites. Four thousand have stopped working. Then what? Eventually, a satellite slows down. It falls out of orbit and burns up in Earth's atmosphere.

The problem is that doesn't happen overnight. The satellite can continue in orbit for months or even years. All that time, it can slam into anything nearby.

Old satellites aren't the only problem. Rockets streak through space to put satellites in orbit. The last stage, or section, of the rocket ends up in orbit, too. Then it is just a useless metal tube with some fuel inside. Years later, it may blow up and shatter into hundreds of dangerous pieces.

TOSSED IN SPACE

It may be hard to believe, but sometimes people litter in space deliberately. Russian cosmonauts didn't know what to do with trash from their space station. So they threw it out into space.

When the United States and the Soviet Union tested weapons, they blew up old satellites. This created lots of space trash.

China did the same thing last year. It was the single worst case of space littering. That's because the weather satellite the Chinese blew up was relatively large. So it exploded into a huge number of pieces.

TRASHING THE FUTURE?

Many scientists are worried about the layers of litter. They fear that space junk will tear apart satellites launched in the future. That would make even more trash!

Space junk could also end the Space Age. Some day, we may not be able to launch any new spaceships. Why not? They would be shredded by floating space junk.

Yet there is hope. People now know the importance of tidying up space. Scientists are working on solutions. They have found ways to design satellites and rockets that put less trash in space. We can hope that the brainpower that lets us explore space can help us clean it up, too.



Many gloves like these were thrown away in space.