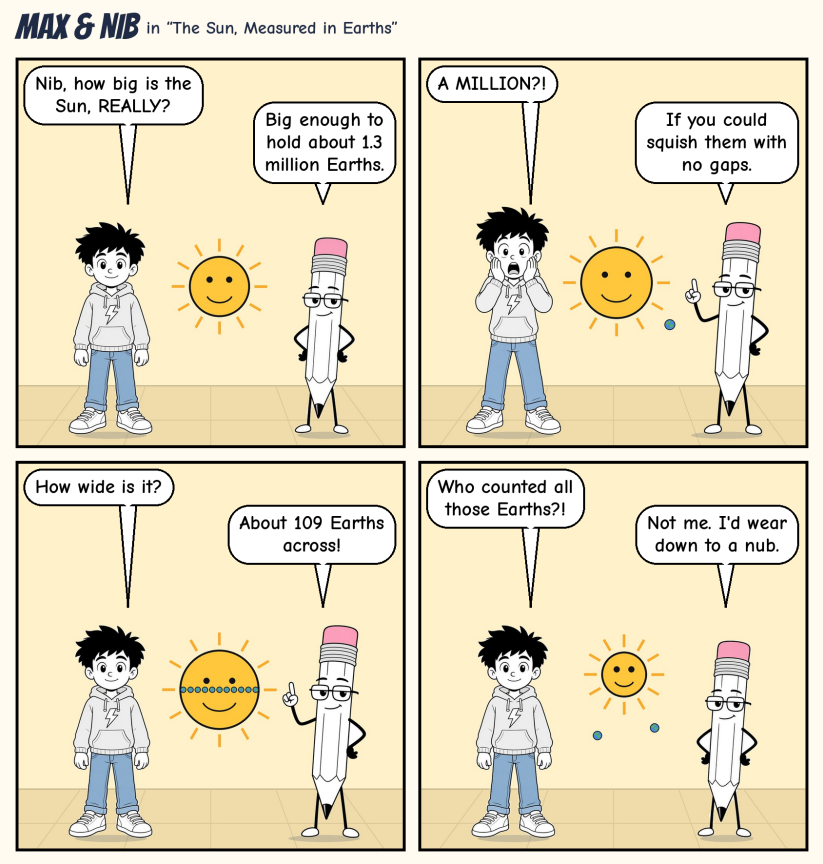


Name: _____ Date: _____

How Many Earths Could Fit Inside the Sun?

Space Science · Grades 3–6 · About 15 minutes · Max & Nib

Cool facts

The Sun looks small in the sky, but it is enormous. It only looks small because it is about 93 million miles away. NASA says the Sun is about 109 times wider than Earth. That means about 109 Earths could line up side by side across the middle of the Sun! Now imagine filling the Sun up like a giant jar. NASA says it would take about 1.3 million Earths to fill the Sun's volume. (Volume means how much space something takes up.) That number pretends the Earths could be squished together with no gaps. Real round Earths would leave little spaces between them, so fewer would actually fit. Either way, the Sun is HUGE, and it is still just an average-sized star. One safety rule: never look straight at the Sun, not even with sunglasses.

Questions

1. About how many Earths could line up across the middle of the Sun?

2. About how many squished Earths would it take to fill the Sun?

3. Why would fewer real, round Earths fit inside the Sun?

4. Look at the comic. What does Nib say would happen if he counted all those Earths?

Write about it

Imagine you could fly a tiny, super-safe spaceship past the Sun. What would you see? How would you describe the Sun's size to a friend?



How Many Earths Could Fit Inside the Sun? — Answer Key

Grades 3–6 · For teacher or parent use

Answers

1. About how many Earths could line up across the middle of the Sun?

   About 109.

2. About how many squished Earths would it take to fill the Sun?

   About 1.3 million (1,300,000).

3. Why would fewer real, round Earths fit inside the Sun?

   Round balls leave gaps (empty spaces) between them, so they can't fill every bit of space.

4. Look at the comic. What does Nib say would happen if he counted all those Earths?

   He would wear down to a nub (he's a pencil!).

Writing prompt: Imagine you could fly a tiny, super-safe spaceship past the Sun. What would you see? How would you describe the Sun's size to a friend?
Accept any creative answer for the writing prompt. Background for adults: the Sun is about 864,000 miles (1.39 million km) across and Earth is about 7,900 miles across, so the Sun is about 109 times wider. Volume grows with the cube of width: 109 × 109 × 109 ≈ 1.3 million, which is where NASA's "1.3 million Earths" comes from (it assumes no gaps). By mass it is different: the Sun has about 333,000 times Earth's mass.

Sources

- NASA Science: Sun Facts — https://science.nasa.gov/sun/facts/
- NASA Space Place: How Does Our Sun Compare With Other Stars? — https://spaceplace.nasa.gov/sun-compare/en/
- Caltech IPAC Cool Cosmos: How large is the Sun compared to Earth? — https://coolcosmos.ipac.caltech.edu/ask/5-How