Week 8 Zero-g

Why Weightless? Wrong reasons.

Why Are Orbiting Astronauts Weightless?

1. “There's no air, so there's no gravity.”
Based on what we've learned this week, explain why that reasoning is incorrect.

2. “There's no gravity in space.”
What holds the Earth in its orbit around the sun?
What holds the Moon in its orbit around the Earth?
Is there gravity in space?

3. They're really far away from Earth, so gravity is weaker.
Read what is on both sides of the paper in the sheet protector. Is that explanation correct?

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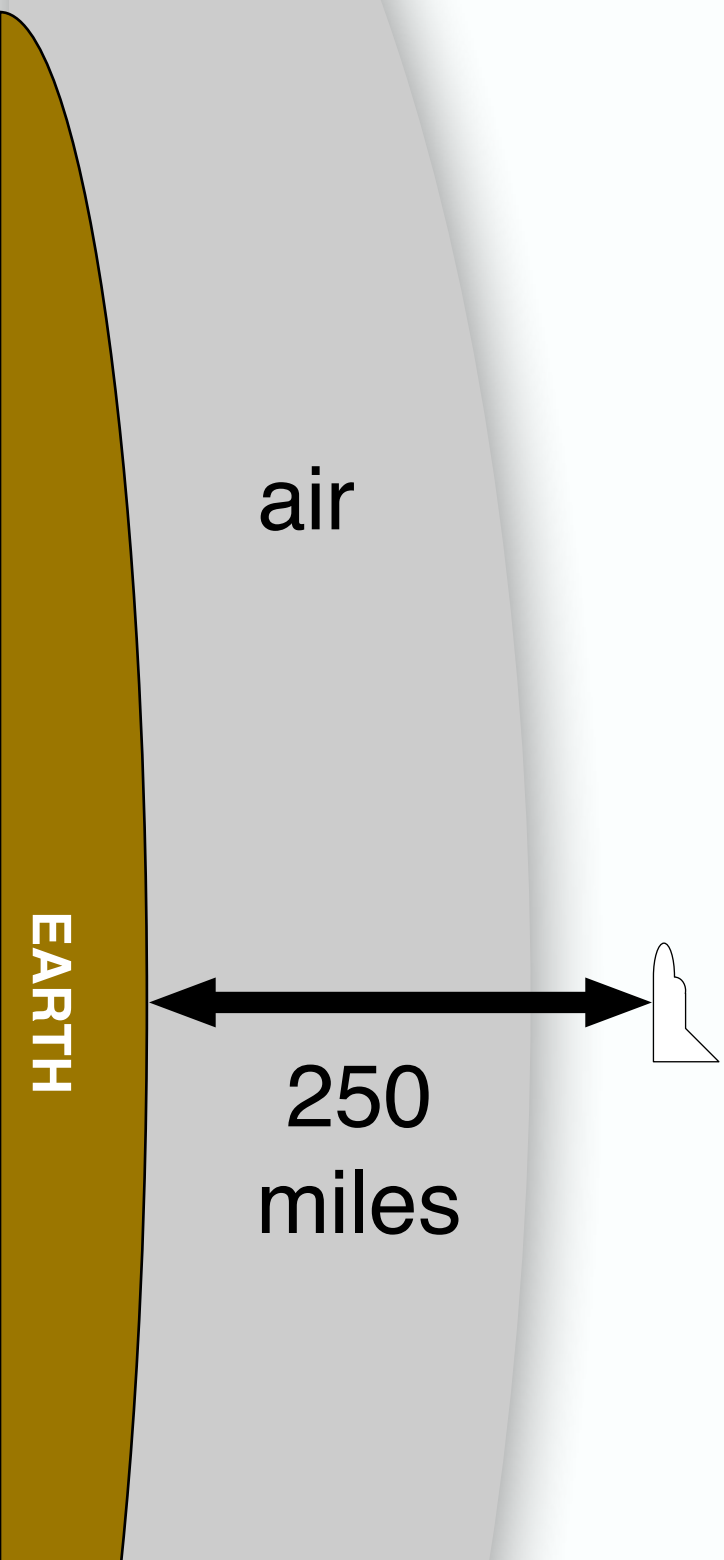
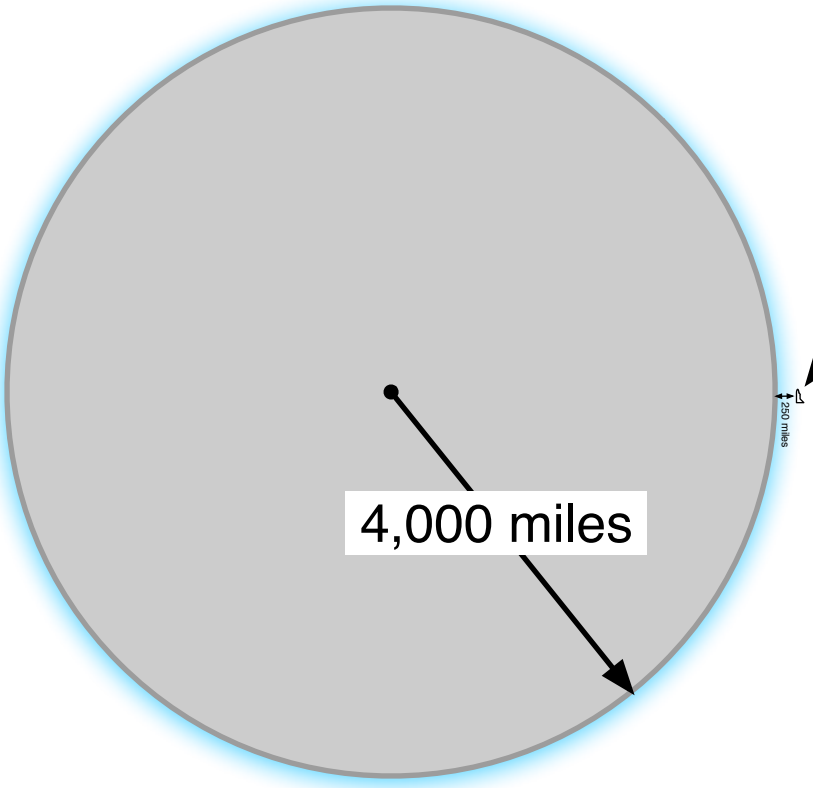


250 miles puts your orbiter outside the atmosphere.

Sure does seem far away, but flip this sheet over to see how far away 250 miles really is.



Can you still see the orbiter?

When you zoom out far enough to see the whole Earth, you realize that 250 miles is actually very close to the Earth.

The Earth is enormous - it has a radius of 4,000 miles.

You also realize that the atmosphere is not the deep ocean of air most people think it is. It's a very thin layer on the surface of Earth.

What do you think now about the explanation that gravity is gone because you're so far away?