

Name:
Period:

Mass vs. Weight

adapted from www.colorado.edu/physics/2000/periodic_table/mass.html

What is the difference between weight and mass? The difference is more complicated than you think.

Mass is a measurement of how much matter is in an object; weight is a measurement of how strongly gravity is pulling down the mass of that object. Your mass is the same wherever you are - on Earth, the moon, floating in space - so the amount of stuff you're made of does not change. Your weight, however, can change depending on how much gravity is acting on you at the moment. You'd weigh less on the moon than on Earth because the moon has less gravity than Earth, and, in space, you'd weigh almost nothing at all.

So why is it so complicated on Earth? If you stay on Earth, gravity is always the same, so it doesn't make a difference whether you find the weight or mass. But scientists still like to be careful about telling the difference between the two. If you talk about the mass of an atom, you are always talking about the same thing. If you are talking about its weight, what you mean is the mass PLUS the amount of gravity - and the gravity can change depending on where you are located.

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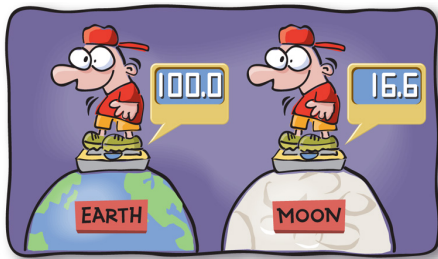
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Analysis Questions:

1. Why does a human weigh almost nothing in space?
2. When the astronauts visit the International Space Station, does their mass change? Why?

Does their weight change? Why?

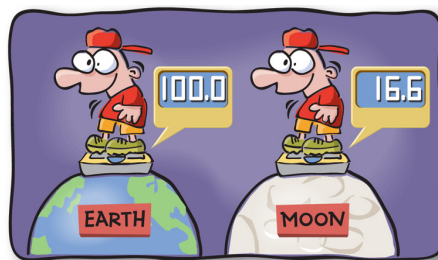


3. Does the graphic on the left depict (show) weight or mass? Use evidence from your reading to support your answer.
4. What is the graphic missing to make it scientifically accurate?

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