

Hi there!

I'm glad you're using this resource. Continue to check our website (realsciencechallenge.com) to find more resources. And, sign up for our newsletter to receive updates on materials that will be available soon.

I spend countless hours writing, researching, editing and generating graphics/charts for each question. I want to continue creating useful content for you to use - however, I also want to ensure my work is fairly compensated.

Therefore, below are the terms and conditions for use of our materials.

What is allowed:

- photocopying our content for your students to use.
- posting a copy of our content (ie. questions, rubrics) on a password protected site for your students to access and/or complete.
- copying our questions into your tests or assignments. Please give credit in this case.

What is not allowed:

- Selling our content.
- Repackaging our content in your own materials and then selling it. NOTE: giving credit to us still does not make this okay.
- Distributing and/or posting our content online (for example, on social media or a blog).

Thank you for supporting us. And, we look forward to helping you with your teaching practice. Please feel free to reach out to us if you have any questions or suggestions.

Sincerely,

Kent
REAL Science Challenge Founder
Science Department Head (Burnaby South Secondary)

Relative Size Bellringer / Brain Break

Materials

- Marble
- Super Bouncy ball
- Golf ball
- Tennis ball
- Basketball
- (Optional) Medicine ball

Instructions

On a flat table, lay out the marble, super bouncy ball, golf ball, tennis ball, and basketball in ascending order according to size. Then ask,

1. If the earth is a tennis ball, which object would be the moon (in relative size)?
 - *Answer: The Earth's diameter is 4 times larger than that of the moon. A tennis ball has a diameter of approximately 6cm. A marble has a diameter of approximately 1.5 cm. Thus, the marble would be the moon in this comparison.*
2. If Jupiter is the basketball, which object would be the earth (in relative size)?
 - *Answer: Jupiter's diameter is 11 times larger than that of the earth. A basketball has a diameter of approximately 24.5cm. A super bouncy ball has a diameter of approximately 2 cm. Thus, the super bouncy ball would be the earth in this comparison.*
3. If an electron is the marble, which object would be a proton?
 - *Answer: An electron's radius is not well defined. However, a proton's mass is 1800 times larger than an electron's mass. A marble has a mass of 6.5g. In this comparison, a proton would be a ball that has a mass of approximately 12kg (like a heavy bowling ball).*