



SPECTACULAR SCIENCE Membership

Balancing Bottles!

Investigation Sheet

Step 1: Prepare Your Investigation

Make sure you have the following materials in front of you. Check them off as you go:

- Pencil/pen to write with
- This investigation worksheet that is printed out
- Two empty and clean soda/water bottles
- A playing card
- An adult science helper!

Now that you have everything, let's move into the fun investigation!!



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Step 2: Pre-Investigation Question

BEFORE you start your investigation, write down what Sir Isaac Newton's first law of motion is. *Hint: Look at the activity webpage!*



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Step 3: Start Your Investigation!!

Gather your materials and follow the steps below to do your investigation.

Follow these steps to correctly conduct your experiment:

- 1.** Put one of the bottles upright on a flat surface.
- 2.** Then, place the playing card on top of the mouth of the bottle.
- 3.** Then, balance the second bottle on top of the first bottle so that the mouth of the bottle is touching the playing card. *Look at the picture to the right.*
- 4.** Then, try to knock the card out from between the bottles. *Look at the picture below.*



And the bottles should remain balanced!





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Step 4: Conclusion

How do you think the bottles staying balanced has to do with Sir Isaac Newton's first law of motion? Write your answer below.



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How Did That Happen?

How did the bottles stay balanced? It is because of Sir Isaac Newton's first law of motion!

The first law of motion is that *an object at rest will stay at rest and an object in motion will stay in motion.*

The card was in motion and kept being in motion, while the bottles were at rest (not moving) and were kept at rest. This means that the bottles would stay balanced, even if the card kept moving!

