

**INVESTIGATION QUESTION**

Does the mass of an object affect how fast gravity pulls it down?

**HYPOTHESIS**

*Hint: try writing it as "If \_\_\_\_, then \_\_\_\_, because \_\_\_\_."*

**Results Table**

| Trial                          | Object 1 | Object 2 | Which landed first? | Why? |
|--------------------------------|----------|----------|---------------------|------|
| 1 -- flat vs. crumpled paper   |          |          |                     |      |
| 2 -- full vs. half-full bottle |          |          |                     |      |

**PhET: Gravity and Orbits ([phet.colorado.edu](http://phet.colorado.edu))**

| Change Made                  | What Happened to the Orbit? |
|------------------------------|-----------------------------|
| Double the Sun's mass        |                             |
| Move Earth twice as far away |                             |
| Remove the Sun entirely      |                             |

**ANALYSIS**

*Why did the two bottles land at the same time even though one was heavier? Why did the flat and crumpled paper NOT land at the same time?*

**CONCLUSION**

*Was your hypothesis correct? Explain the difference between gravity and air resistance in your own words.*

**THINK FURTHER**

*Galileo supposedly dropped two cannonballs of different sizes from the Leaning Tower of Pisa. What did he discover, and why did people find it so hard to believe at the time?*