

A small, faint image of an astronaut floating in space, positioned at the top center of the slide.

Microgravity, Demonstrations, STEM, and your Classroom

FORCE ANALYSIS

SEEC 2011
February 3-5, 2011
Space Center Houston
Houston, Texas

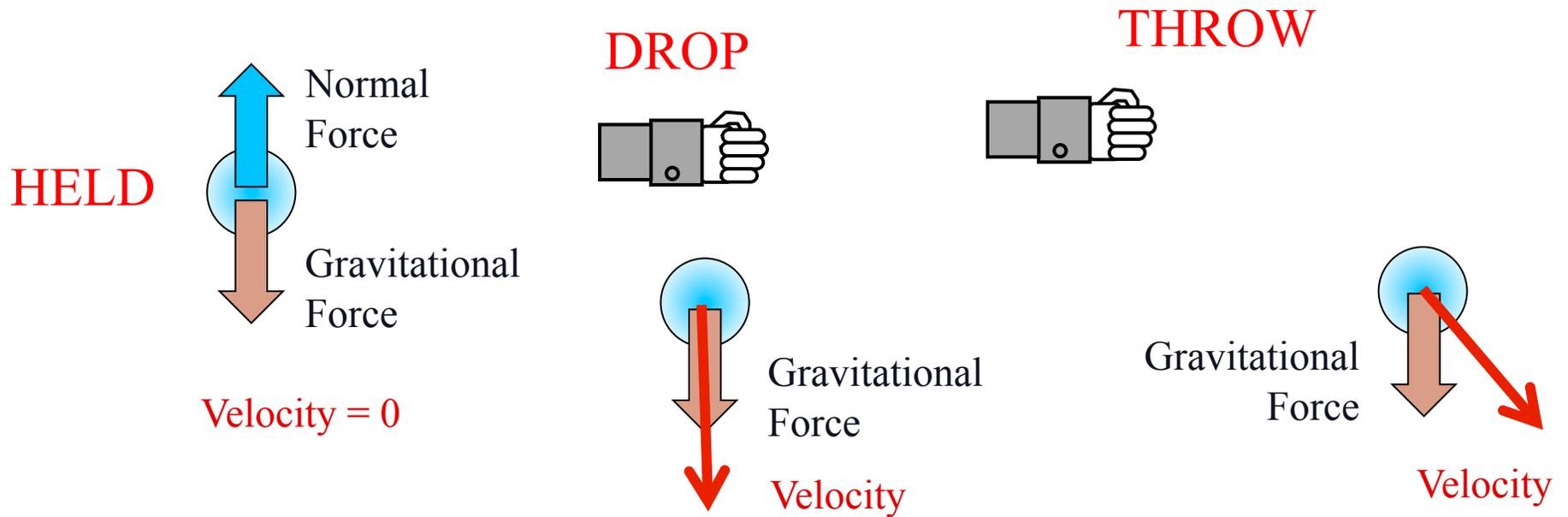
Richard DeLombard
Mr. Microgravity, Ltd.
Huron, Ohio
Retired from NASA Glenn Research Center

FORCE ANALYSIS

Analyze the situation for each device and develop the forces involved. Don't forget that gravity pulls down on EVERYTHING.

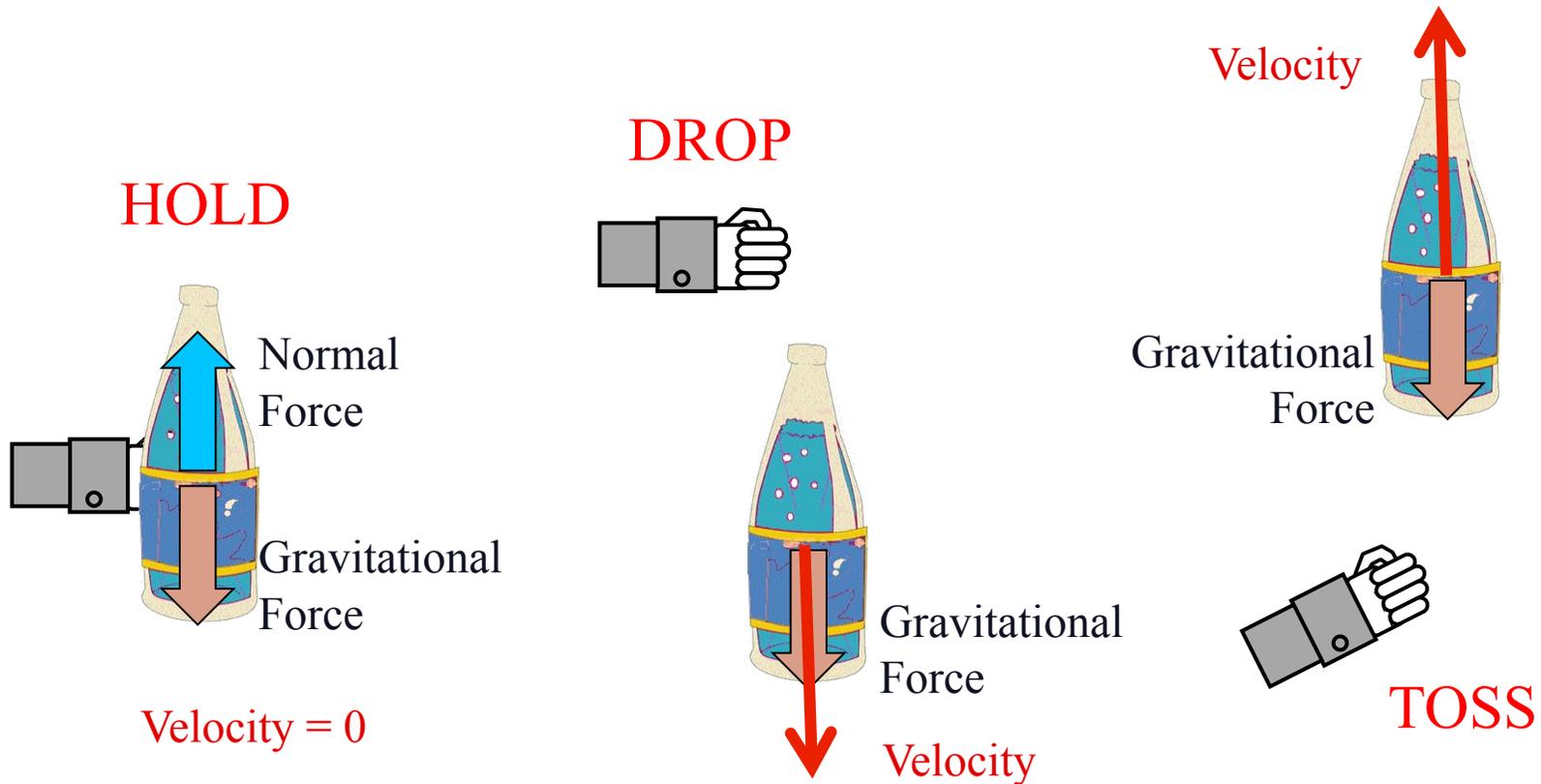
Can you explain the observed motion by the forces?

Foam Ball or Foam Rocket Launcher

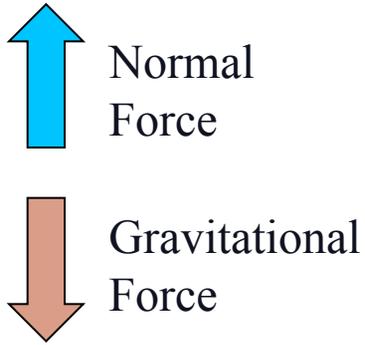


WHAT FORCES ARE ON THE BALL? (neglect air resistance)

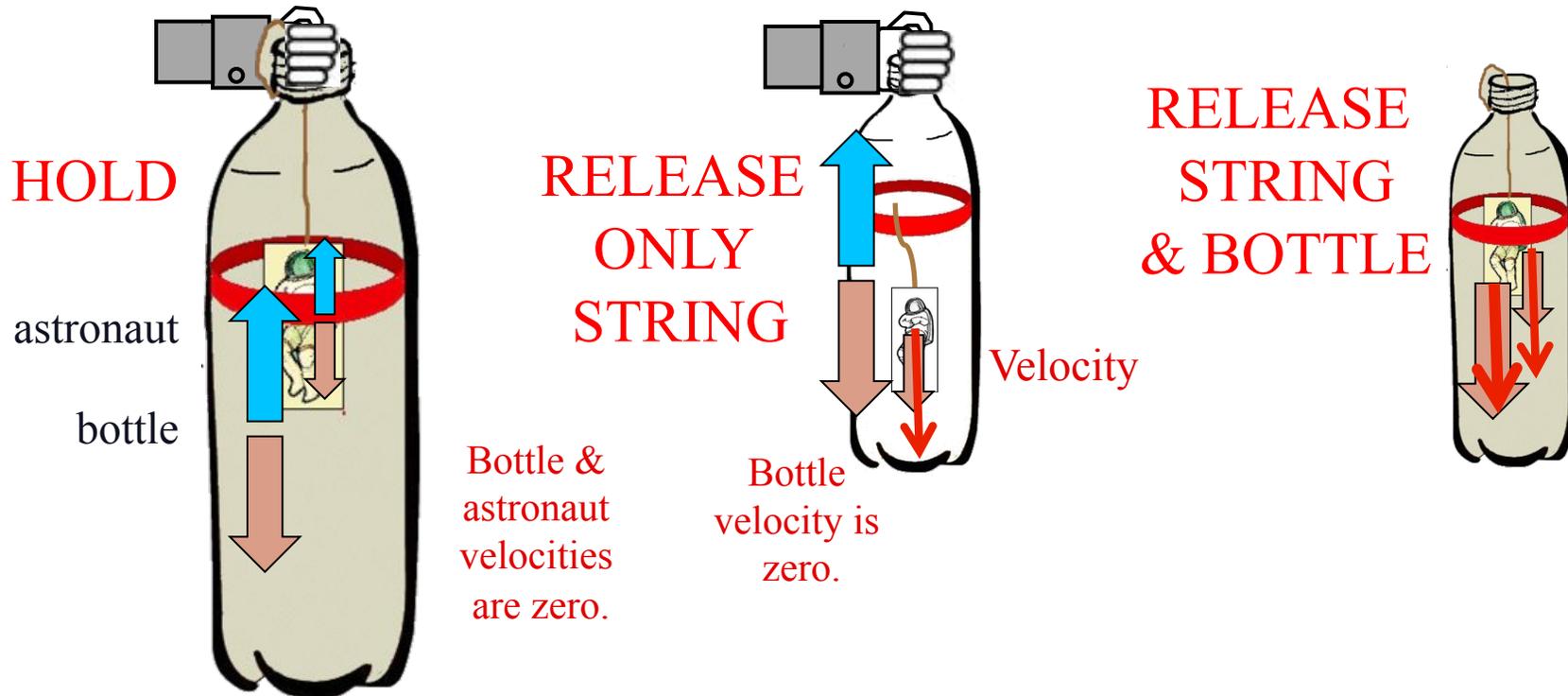
Leaky water bottle



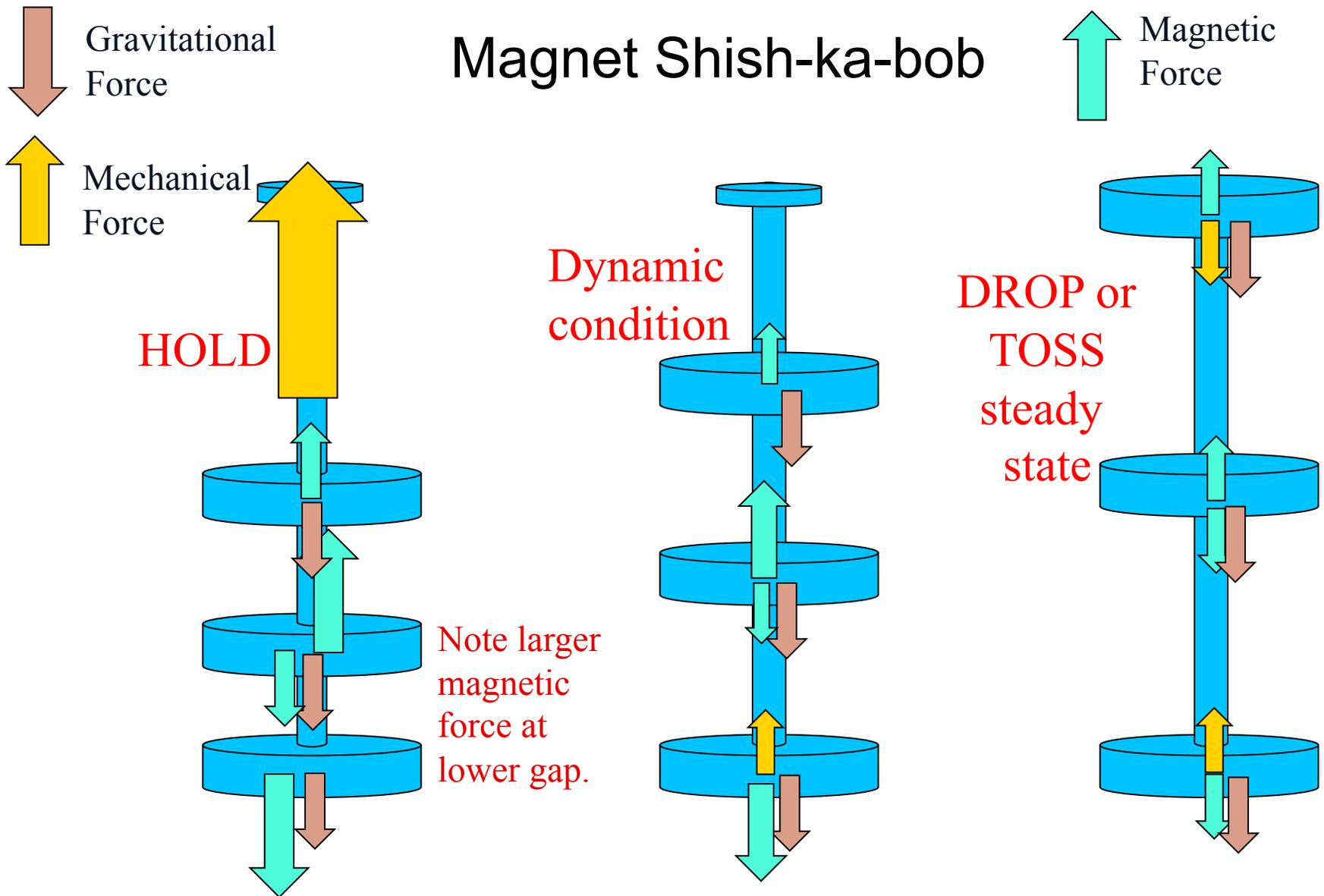
WHAT FORCES ARE THERE ON THE WATER?
WHAT DOES THE WATER DO?



Astronaut in a bottle

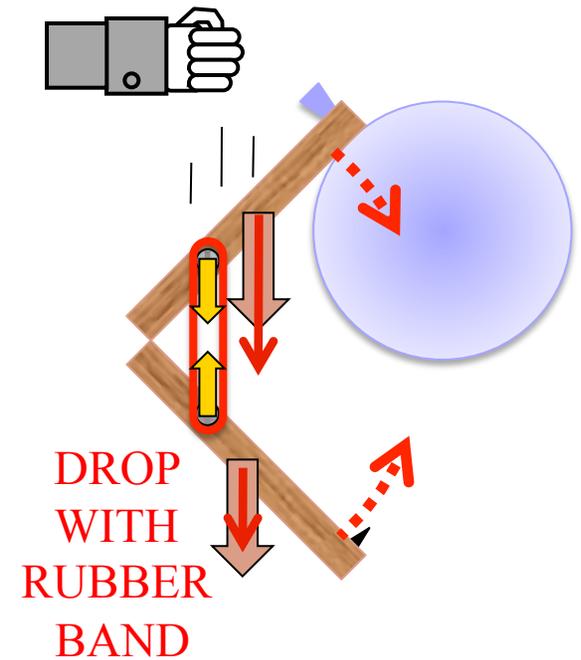
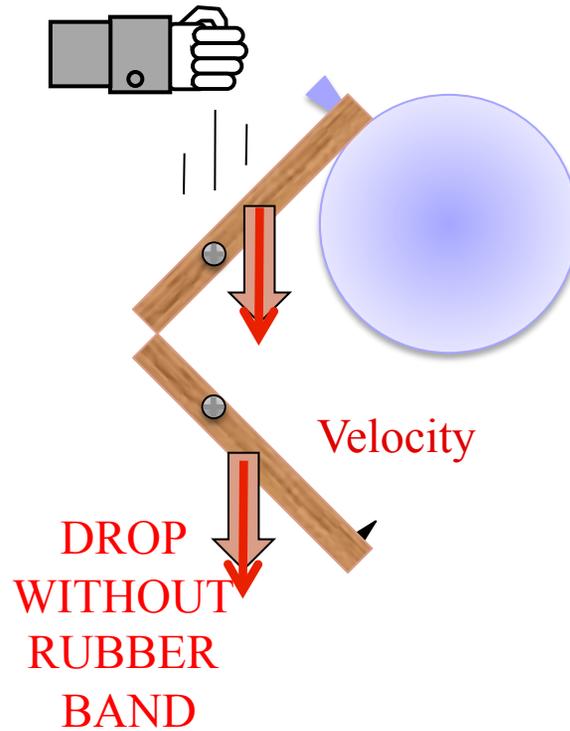
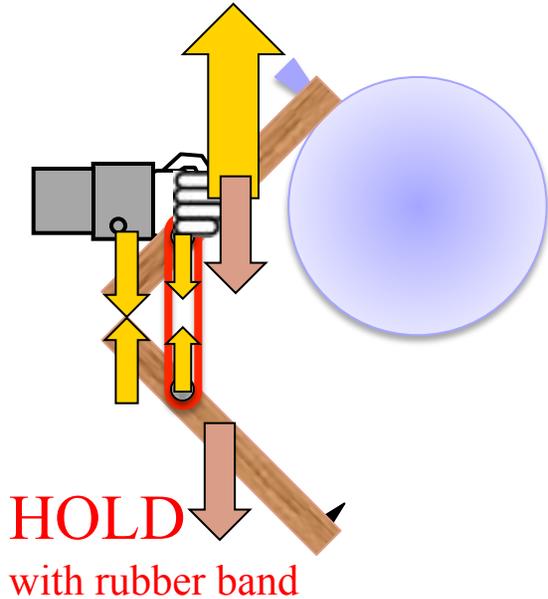
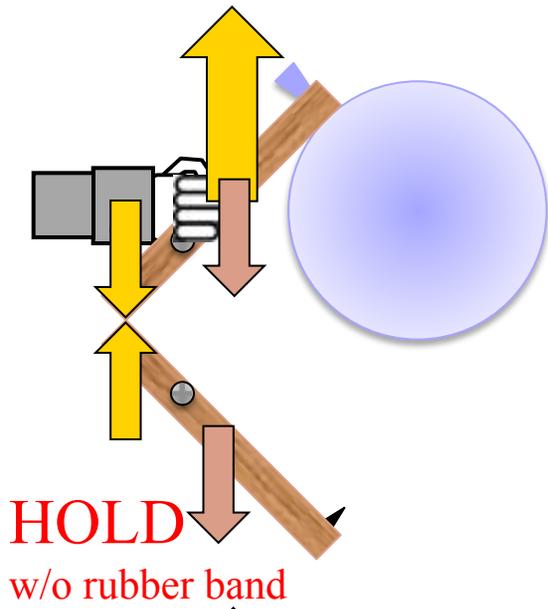
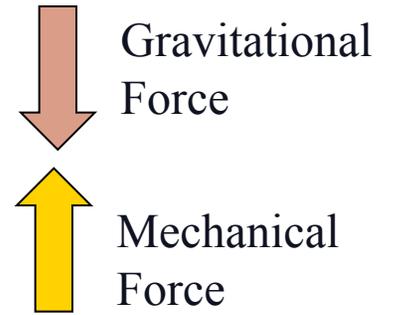


WHAT FORCES ARE ON THE BOTTLE? AND ON THE ASTRONAUT?
WHAT FALLS? WHY? WHAT DOES THE ASTRONAUT DO INSIDE?



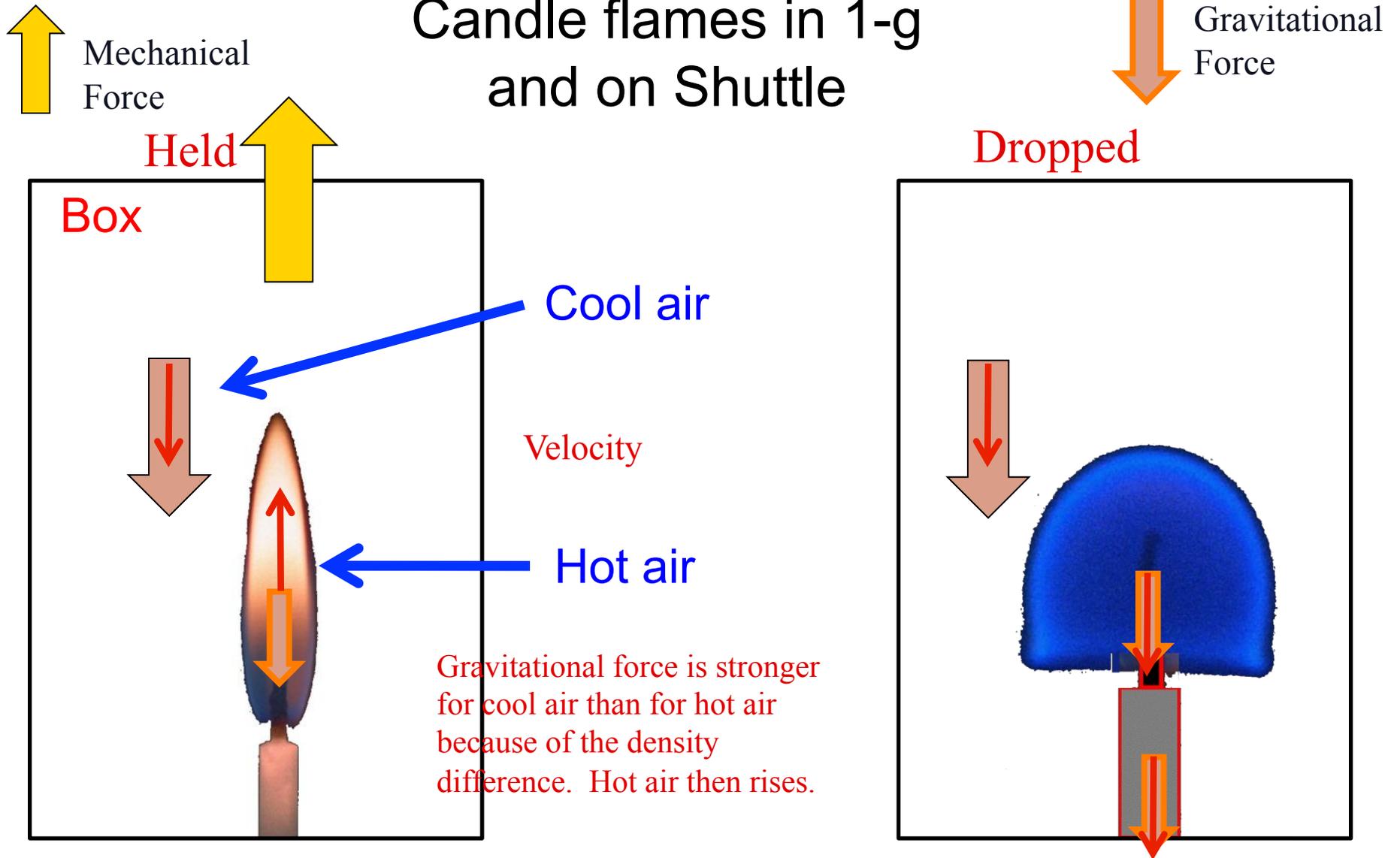
More diagrams to draw where the magnets are and the forces at different times (i.e. held, dropped, or tossed). Neglect stick mass.

Balloon popper



**WHAT FORCES ARE INVOLVED? (Neglect balloon mass.)
HOW DO THE ARMS MOVE? WHY?**

Candle flames in 1-g and on Shuttle



What forces are acting on the air and the flame when the box is held and when it is dropped?