Pressure Paradox
Lesson Plan

Amount of time Demo takes: (<5min)
Try this at home!

Materials
- Styrofoam ball
- Steel Ball
- Clay
- Balance

Set up instructions
1. Set up balance, place piece of clay on it and tare weight.

Lesson’s big idea
- Styrofoam ball feels lighter but is it actually?
- Volume- It is based on diameter. Styrofoam ball has a greater diameter so it has a greater volume.
- Density- It is based on volume and mass. Styrofoam has a large mass and volume and steel ball has small volume and small mass. Thus when M/V the densities are equal.
- Pressure- Is F/A. The gravity acting on the balls is equal but the steel ball has a lower surface area so the pressure is greater. This is what makes it feel like the steel ball is heavier.

Instructional Procedure
1. Let kids hold both balls. Which is heavier?
2. Weigh both balls. Were they right about which is heavier?

Assessment/sample questions you can ask
- Which has a greater volume?
- Which is more dense?
- Why does the steel ball feel heavier?

References
Science first pressure paradox kit
Next Generation Science Standards
MS-PS1 Matter and its Interactions
HS-PS1 Matter and its Interactions