



Kitchen Chemistry

Density

KEY TERMS

Density – Mass per volume; how compact something is; calculated in grams per mL

Matter – Anything that takes up space and has mass

Mass – Measured in weight here on Earth

Volume – How much space something takes up

DISCUSSION QUESTIONS

EXPERIMENT #1

- After peeling the orange, which will float and which will sink?
- Would this work with other fruits or vegetables? Which ones?

EXPERIMENT #2

- Which object surprised you as to where it fell in the density tower?
- Why do you think the objects fell where they did within the tower?

EXPERIMENT #1 *ORANGE PEEL DENSITY*

WHAT YOU NEED AT HOME

- 2 oranges about the same size
- Container or bowl full of water (preferably a clear container)

HOW TO DO IT

- Peel one of the oranges
- Place oranges in water to see which one floats
- Repeat with other fruits and vegetables that have peels

EXPERIMENT #2 *BUILDING A DENSITY TOWER*

WHAT YOU NEED AT HOME

- A tall clear container (A jar or an old 2 L bottle will work in a pinch)
- Honey (1.42 g/mL)
- Dish washing soap (1.06 g/mL)
- Milk (1.02 g/mL)
- Water (1.0 g/mL)
- Oil (0.93 g/mL)
- Rubbing Alcohol (0.78 g/mL)
- A funnel if you need it.
- A few objects to test in your density tower (screw, ping pong ball, cherry tomato, dice, popcorn kernel, beads, etc)
- Kitchen scale

HOW TO DO IT

- If you have a kitchen scale, you can calculate the density of each substance by taking the mass in grams, which is the weight, and dividing it by the volume in milliliters. The higher the value, the more dense the solution is.
- Add each substance to the container, starting with the most dense to least dense.
- Add a few of these objects, and see where they fall in our density tower.