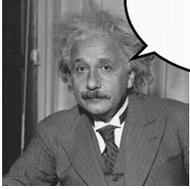


Name: _____



Hey Kinder...
Energy is sehr
important
 $E=mc^2$

Little Bits of Stuff (MATTER)

Moving Around - Pt. 2

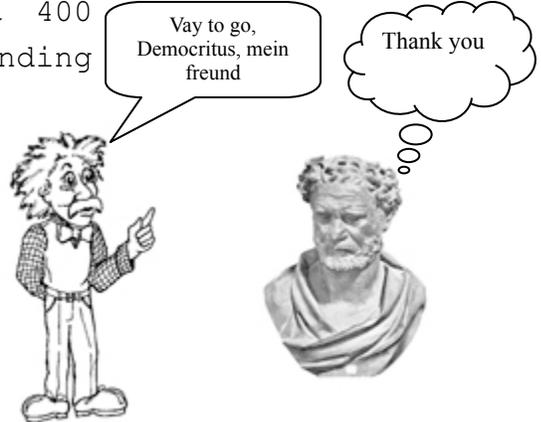
(or as some like to call it - Kinetic Molecular Theory)

Current scientific understanding agrees with the basis of Democritus' hypothesis - all **MATTER** is made up of particles too small for the human eye to see. Over the past 400 years much has been added to our understanding of **ATOMS** and the **MOLECULES** they make up but scientists are in agreement that these 'little bits of stuff' do make up matter.

In 'Little Bits of Stuff: Part 1' we looked at what happens to one kind of **MATTER** - The H_2O **MOLECULE** - when we added, or took away, one kind of **ENERGY** - heat. When we added heat to the H_2O **MOLECULES** we saw a **CHANGE OF STATE** from _____ to _____ to _____.

When we removed heat from the H_2O **MOLECULES** we saw the reverse **CHANGE OF STATE** from _____ to _____.

In 'Little Bits of Stuff: Part 2' we will examine what is happening to those H_2O **MOLECULES** when a **CHANGE OF STATE** occurs. More specifically, we will use **KINETIC MOLECULAR THEORY** to explain the behaviour of those **MOLECULES**.



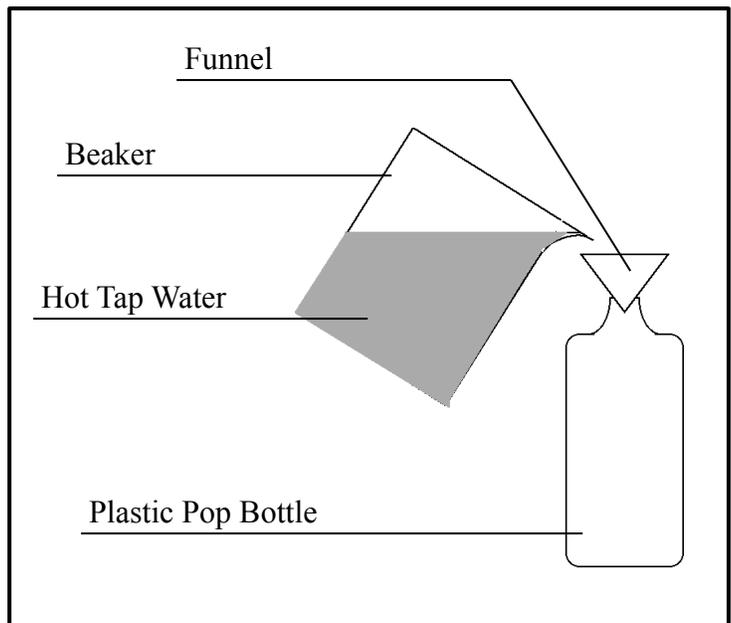
Station 1

MATERIALS

- Empty Plastic Pop Bottle with Lid
- Hot Tap Water
- Large Beaker
- Funnel

PROCEDURE

1. Fill the beaker with hot tap water.
2. Place the funnel into the throat of the empty pop bottle.
3. Completely fill pop bottle with hot tap water



4. Pour water out of bottle.
5. Quickly apply lid to bottle tightly
6. Observe the bottle for 3 minutes and record your observations.

OBSERVATIONS (Write down what you observe)

-
-
-

WHAT KIND OF DATA DID YOU COLLECT IN THIS EXERCISE?

QUANTITATIVE

QUALITATIVE

I Digress!

WHAT IS THE DIFFERENCE BETWEEN QUANTITATIVE AND QUALITATIVE DATA?

7. If all **MATTER** is made out of **MOLECULES** and you are going to use the behaviour of those **MOLECULES** to explain your observations above, what is happening inside (and outside actually) the bottle that would explain your observations? Use the following questions to help you explain.

When an object like an H₂O molecule has a lot of ENERGY does it move:

MORE or LESS?
FASTER or SLOWER?

When an H₂O **MOLECULE** is moving more and faster does it need more or less space?

When an H₂O **MOLECULE** needs more space does it get closer to, or further from, other H₂O **MOLECULES**?

Why did the bottle do what the bottle did?

KINETIC MOLECULAR THEORY

Kinetic - Moving or in motion
Molecular - of or about **MOLECULES**

Scientists today use **KINETIC MOLECULAR THEORY** to explain the behaviour of **MOLECULES**, which make up all **MATTER**.



Kinetic Molecular Theory states

1. That all matter is made up of _____.
2. These _____ are constantly in _____.
3. As these **MOLECULES** change state from _____ to _____ to _____ they move further apart.
4. _____ or other forms of _____ make the **MOLECULES** move faster.

