STUDENT ACTIVITY PACKET

When students are having fun, science can become more interesting and memorable for them. The Professor encourages you to use this packet as an extra learning tool. The Student Activity Packet is intended to be used alongside the live performance of DoDad’s Lab “Tales of Chemistry” show. As the Professor shares “Never Stop Learning”.

www.dodadslab.com
VINEGAR VOLCANO

USE BAKING SODA AND VINEGAR TO CREATE AN AWESOME CHEMICAL REACTION! WATCH AS IT RAPIDLY FIZZES OVER THE CONTAINER AND MAKE SURE YOU'VE GOT SOME TOWELS READY TO CLEAN UP.

PROCEDURE

1. PLACE SOME OF THE BAKING SODA INTO YOUR CONTAINER.
2. POUR IN SOME OF THE VINEGAR

WATCH AS THE REACTION TAKES PLACE!

WHAT'S HAPPENING?

THE BAKING SODA (SODIUM BICARBONATE) IS A BASE WHILE THE VINEGAR (ACETIC ACID) IS AN ACID. WHEN THEY REACT TOGETHER THEY FORM CARBONIC ACID WHICH IS VERY UNSTABLE, IT INSTANTLY BREAKS APART INTO WATER AND CARBON DIOXIDE, WHICH CREATES ALL THE FIZZING AS IT ESCAPES THE SOLUTION.

MATERIALS NEEDED

*BAKING SODA
*VINEGAR
*A CONTAINER TO HOLD EVERYTHING AND AVOID A BIG MESS!
PAPER TOWELS OR A CLOTH (JUST IN CASE)

FOR EXTRA EFFECT YOU CAN MAKE A REALISTIC LOOKING VOLCANO. IT TAKES SOME CRAFT SKILLS BUT IT WILL MAKE YOUR VINEGAR AND BAKING SODA ERUPTIONS WILL LOOK EVEN MORE IMPRESSIVE!

HAVE AN ADULT HELP YOU!
A chemical change is a change in which one or more substances combine or break apart to form a new substance.

* Turns one substance into another substance.
* Changing its chemical composition.
* New substance has different properties from original substance.
* Irreversible

Tip of the Day
When a chemical reaction occurs, a new substance is always formed.
CHANGES OF MATTER

PHYSICAL CHANGE

A PHYSICAL CHANGE IS A CHANGE IN A SUBSTANCE THAT DOES NOT CHANGE ITS IDENTITY, SUCH AS A CHANGE OF STATE. MATTER CAN CHANGE STATE WHEN IT LOSES OR GAINS THERMAL ENERGY.

TIP OF THE DAY

A PHYSICAL CHANGE IS ONLY A CHANGE IN APPEARANCE, NOT CHEMICAL IDENTITY.

* GIVES A SUBSTANCE DIFFERENT STATE OF MATTER.
* NO CHANGE IN ITS CHEMICAL COMPOSITION.
* REVERSIBLE.
True or False

1. _________ A substance that undergoes a phycial change, like melting, is still the same substance.

2. _________ During a chemical change, atoms, are lost or gained to make the new substance.

3. _________ Dissolving, bending, crushing, breaking, or chopping are all examples of physical change.

4. _________ A change of state, such as boiling, is an example of chemical change.

5. _________ Most physical and chemical changes in matter include a change in energy.

Circle the correct answer

1. Physical or Chemical Change - Baking chocolate cupcakes

2. Physical or Chemical Change - Breaking a bottle

3. Physical or Chemical Change - Rust forming on an iron nail

4. Physical or Chemical Change - Tearing out a picture from a magazine

5. Physical or Chemical Change - Combining vinegar and baking soda

6. Physical or Chemical Change - Sewing together fabric to make a shirt

7. Physical or Chemical Change - Boiling a pot of water on the stove

8. Physical or Chemical Change - Digesting your lunch into nutrients
DODAD’S LAB
TALES OF CHEMISTRY

OOBLECK

CREATE A SUBSTANCE THAT ACTS VERY SIMILAR TO QUICKSAND BUT IS MADE VERY DIFFERENTLY. PLAY AROUND WITH IT AND FIND OUT HOW IT ACTS DIFFERENTLY FROM A NORMAL LIQUID AND A NORMAL SOLID.

PROCEDURE

1. POUR ONE CUP OF CORNSTARCH INTO THE BOWL.
2. SLOWLY POUR 1/2 CUP OF WATER TO THE BOWL.
3. ADD FOUR DROPS OF FOOD COLOURING TO THE BOWL.
4. USE YOUR HANDS TO SQUISH THE WATER AND CORNSTARCH TOGETHER.
5. DROP YOUR HANDS QUICKLY INTO THE OOBLECK, THEN SLOWLY LOWER YOUR HANDS INTO THE OOBLECK. WHAT IS DIFFERENT?
6. TRY SQUEEZING SOME OOBLECK INTO YOUR HANDS. WHAT HAPPENS?

WHAT’S HAPPENING?

Applying pressure to the Oobleck increases the viscosity. Viscosity is a fancy science word which means “thickness”. If you quickly tap the surface of Oobleck, the Oobleck will feel hard because it forces all the cornstarch particles together. Now if you slowly dip your hand into the Oobleck and your fingers will slide through easily. This happens because moving slowly gives the cornstarch particles time to move out of the way.

Oobleck and other pressure dependent substances (or substances that feel different depending on how much much pressure is place on them) are not liquids. They are called non-Newtonian fluids. Other examples of non-Newtonian fluids are silly putty and cold caramel sauce.

MATERIALS NEEDED

*1 CUP OF CORNSTARCH
*1/2 CUP OF WATER
*FOOD COLORING (OPTIONAL)
*LARGE MIXING BOWL

HAVE AN ADULT HELP YOU!
Chemistry Word Hunt

NSCLIPCTANMNHNBININO
CAERLODIAOYSLROOETDO
NIPNYIEONETOPMNXAON
OOMOCSNHPPYILUMDORDMN
XTPREITAYEREURCICACES
HRUAEBNAXMETALROPPOE
EEMPSHOOLEAESRVRVECCA
NEOEUITIIILLOGICATELB
APLHOTHOTOLTONELMLMPTUT
YDLPERIODICTABLECMEE
LATRONINANNARELNHASN
MEMENTLPEILGEGEOTOCOCN
CINCRITTLPOIPRPIRONHT
CHOMOGENEOSSOUEELIM
LAIREDREATIONLIITILMS
NIUAESNHCNTPGNTNXOEEI
HCCATALYSTMHAALOTIUT
TDADEBTSUEAENNIALDML
CEALHLLIRRSSNNRTEREEHYN
MANNANSLLLEDMENTOTLCRML

ACID
ATOM
BOND
CHEMISTRY
CRYSTAL
HETEROGENEOUS
MELTING POINT
MIXTURE
PHASE
REACTANT

ALLOTROPE
BASE
CATALYST
COLLOID
ENDOTHERMERIC
HOMOGENEOUS
METAL
NONMETAL
POLYMER
REACTION

ANION
BOILING POINT
CATION
COVALENT
EXOTHERMERIC
IONIC
METALLOID
PERIODIC TABLE
PRODUCT
SOLUTION
DODAD’S LAB
TALES OF CHEMISTRY

SEARCHING FOR AN ELEMENT FACT SHEET

1. Name of element: ____________________________________________

2. Symbol of element: __________________________________________

3. Atomic Number: _____________________________________________

4. How did your element get its name? ______________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________

5. Who discovered your element? _________________________________
________________________________________________________________
________________________________________________________________

6. What year was your element discovered in? _________________________

7. What are two elements that are near your element on the periodic table?
   ____________________________________________
   ____________________________________________

8. List three interesting facts about your element:
   1. _________________________________
   2. _________________________________
   3. _________________________________