

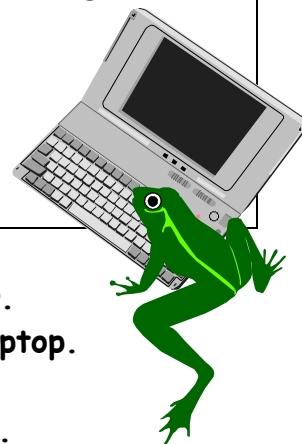
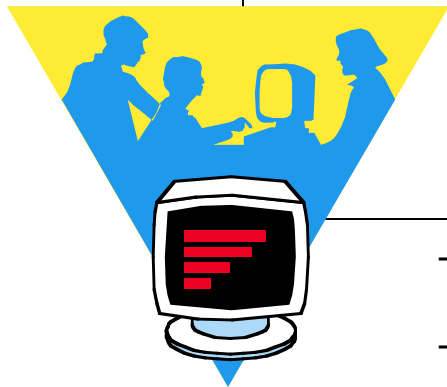
I. Computer Notes: Initial or check \checkmark as you read.

You are expected to use computers as part of your assignments.

Do not abuse the privilege.

Follow directions.

In doubt? ASK!



- ___1. Use the computer assigned to you according to your seat/lab number.
- ___2. Log in with SSID, when using a laptop.
- ___3. Name your work.
ADD your name BEFORE your print.
- ___4. PRINT PREVIEW before you print.
- ___5. If you need to save your work, SAVE AS...
Include your name and period. Ask where.

II. Computer Sensor Notes:

- ___1. Always protect computer and cords from liquids.
Laptops should be set up on something to keep them off the lab table.
Liquid should be away from iMacs.
Cords should be away from sink, liquid and not hanging.
- ___2. Plug in sensor, then open application program. Use *Logger Lite* (or *Logger Pro*).
- ___3. Test the sensor with a short test observation and then reset to zero.
- ___4. Graph your prediction first, according to your hypothesis.
- ___5. USE CARE and NO PRESSURE when using a sensor. The wires break easy .
- ___6. Keep sensor on an object or in a substance.
For liquid, use a container that will not easily tip over, such as a flask AND one hand MUST hold the container when the sensor is in the flask.
- ___7. Clean and dry the sensor when finished. Return it, as directed.
- ___8. Save any graph and/or chart that you may need later.
- ___9. Graph should be sized, labeled AND include your name before you print it.
- ___10. PRINT PREVIEW before you print.
- ___11. If in doubt, ASK.

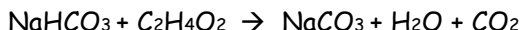
1. Your **Problem**:

Determine if energy is gained or lost during a chemical reaction.

2. Background Information: A chemical change takes place during a chemical reaction.

A chemical change creates a new substance and either uses or releases energy.

When sodium bicarbonate (NaCOH_3 or baking _____) is added to 5% Acetic acid ($\text{C}_2\text{H}_4\text{O}_2$ or v _____) the result is carbon dioxide (CO_2) gas AND, the solution changes temperature.



Exothermic reactions give off heat or become w _____ r.

Endothermic reactions use heat so become c _____ r.



You will need to measure the temperature change during the reaction to determine if energy is gained or lost during the reaction.

3. Finish your **Hypothesis** (prediction). Use a complete sentence with no "it".
*When vinegar and baking soda react to form carbon dioxide, the temperature will go _____ showing that energy is _____.*4. **Procedures and Observations**: Check ☒ as you go.

___ a) Sensor should be plugged in. Open "Logger Lite". Run a short test.

___ b) Obtain flask of vinegar.

Place temperature sensor (thermometer) in your flask of vinegar.

ALWAYS HOLD FLASK with one hand, when the sensor is in the flask.

___ c) Record before temperature here. _____ °C (degrees Celsius)

___ d) Use the prediction "pencil" to draw your prediction graph on "LoggerLite".

___ e) Obtain baking soda on a paper towel. Fold towel to make it easy to pour.

___ f) "Collect" to record temperature readings as you slowly add your baking soda to the vinegar while ONE HAND IS HOLDING THE FLASK.

___ g) Collect until the bubbles are very slow or stop. Then "Stop".

___ h) Record your ending temperature here _____ °C (degrees Celsius)

___ i) Have your screen graph Checked _____ OR if time is too short, save it:

File → **Save as.....** Add Your names + period → Ask where.

4. **Conclusion**: Finish your Conclusion using a complete sentence with no "it".

When vinegar and baking soda react to form carbon dioxide, the temperature goes _____ showing that energy (in the form of heat) is _____ showing that it is an e _____ reaction.

##1) Add labels, including its name and your name, to your graph. Change size, if needed.

##2) File → Print Preview. Let it print in the middle of the page. File → Print when ready.

##3) Use your printed graph and a real pencil to add your

Problem & Hypothesis to the top of the paper.

##4) Add your Procedures and Conclusion to the lower part of your paper. Have Checked _____.