Student Name:

_____

Date: _____

Activity Sheet 1

Making a Wet Cell Battery

Batteries are used in many things around your home (eg: phones, computers, cars). What does a battery do? How does it work? Discuss with your partner and write down what you know or can guess. You can include a drawing to help.

You are going to make a wet cell battery and try to figure out how it works.

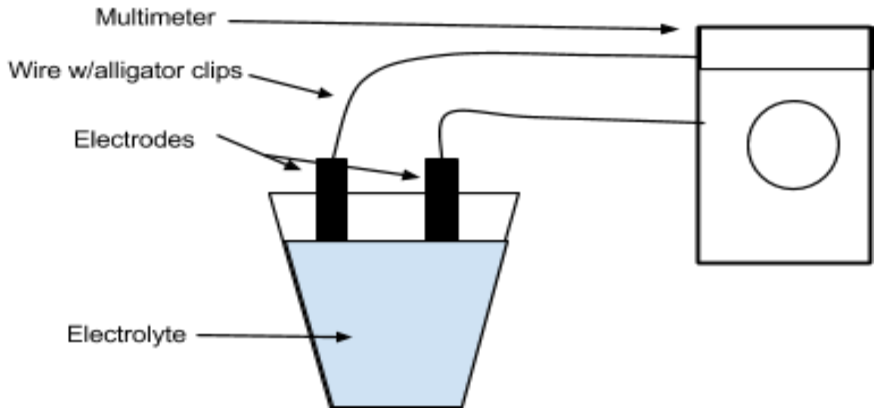
Materials:

Cup Water Salt Copper Zinc Lead
Wire w/alligator clips Multimeter

Method:

__ 1) Fill the cup ¾ of the way with saltwater.

__ 2) Set up a circuit as shown below and test the different combination of electrodes. Measure the different voltages using the multimeter (set the multimeter to the 20 setting on DC Volts). Record in your table.



Student Name:

_____

Date: _____

Electrode Test Results

Electrode	Electrode	Voltage (V)
Copper	Copper	
Copper	Lead	
Copper	Zinc	
Lead	Lead	
Lead	Zinc	
Zinc	Zinc	

Conclusion:
Based on your findings, what can you state about the electrodes in a battery? What else did you notice about the electrodes?

_____
__

_____
__

_____
__

__ 3) Clean out your cup and add just distilled water to the cup.
__ 4) Choose the combination of electrodes that gave you the strongest voltage and use them to set up a wet cell battery.
__ 5) Measure the voltage of the battery. Record below:

Electrode	Electrode	Voltage (V)

Conclusion:
Compare the voltage for these electrodes with water and saltwater. Which worked better? What conclusion can you make about the electrolyte?

Student Name:

_____

Date: _____

_____

_____

_____

_____

_____

_____

Activity Sheet 2

What Affects a Wet Cell Battery?

Now that you have a better idea how a battery works, you will look at how changing one part of the battery affects its strength (voltage).

Variable: A variable is something that you change. With your group, come up with a list of things you can change on your battery. Later, you can add ideas from other groups.

Independent Variable: This is the thing that you will change in your experiment. As a group, choose what yours will be:

_____

Dependent Variable: This is what you will measure to find out the affect of the independent variable. What will this be?

_____

Control Variables: It is very important that you only have one independent variable. Everything else will need to be kept the same. List 3 variables that you will need to control:

Student Name:

_____

Date: _____

Aim: What are you trying to find out in your experiment? Write this as a cause/effect statement:

_____

_____

Hypothesis: What do you think will happen? Write this as an If, Then, Because statement:

_____

_____

_____

Materials: What materials will you need to use? Make a list below. You can always add or remover things later.

Diagram: See directions for method first.

Method: List your steps out below. Be sure to use commands (eg: put, measure, pour). You can include a diagram if it will help.

Student Name:

_____

Date: _____

Experiment: Have your teacher review and check your plan first, then run your tests and collect results.
Results: Fill in this table with your information and add your results once you perform the test.

Dependent Variable: _____

Independent Variable: _____	**Test 1**	**Test 2**	**Test 3**	**Average**

Conclusion:
Look at your results. What is the answer to your aim? What results show this?

_____

_____

_____

Student Name: _____

Date: _____

Activity Sheet 3

Battery Assessment

Challenge:
Using your results from your experiment and any other information, try to build the strongest wet cell battery.You will compete against other groups to find out who can produce the most volts. Record your information below:

Electrodes Used	Electrolyte Used	Other Features

Questions:

1) What do the ***electrodes*** do? Why did you choose the ones you did?

_____

_____

_____

2) Which electrode was the ***cathode***? What happens here?

Student Name:

_____

Date: _____

_____

_____

_____

3) Which electrode was the ***anode***? What happened here?

_____

_____

_____

4) What does the ***electrolyte*** do? Why did you choose your specific electrolyte

_____

_____

_____

5) What other modifications did you make to your battery? Explain why you made these?

_____

_____

_____

6) In order for the charges to move out of the battery, what did you need to do?

_____

_____

7) What kind of energy does the battery have? Think of all the devices that use batteries and trace the ways this energy is transformed.