Name: _____ DUE: _____

Teacher: _____ SENT HOME: Week of Jan 18-22, 2016

Project Title: _____

Materials & Procedure

"Getting Ready to Do the Experiment"

There is no denying that the best part of the scientific method is conducting the experiment, but before you begin your experiment you should check your materials list and have a good understanding of the procedure, as well as taking care of all safety issues.

Check Your Materials List

By checking the materials and equipment ahead of time, you can make sure that you have everything on hand when you need it. Some items may take time to obtain, so checking your project's materials list in advance represents good planning!

DIRECTIONS Use the checklist below to help you make the materials list as specific as possible (edit the list as necessary), and be sure you can get everything you need before you start your science fair project.

What Makes a Good Materials List?	YES	NO
• Are all necessary materials listed?		
• If your project has safety concerns; does the materials list include ***adult supervision***?		
• Are all materials described in sufficient details? (specify size/dimension, amount/quantity, units of measurements, style/brand)		
• Do some materials require substitution?		
• Has your teacher approved the necessary substitutions?		
• Will some materials take time to obtain?		
• Did you edit your materials list to make it as specific as possible?		

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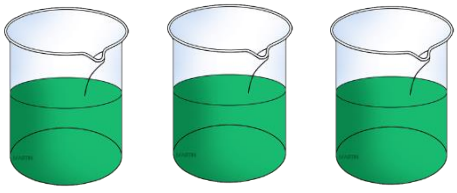
Check Your **Experimental Procedure**

Now that you have come up with a hypothesis, you need to have a good understanding of the experimental procedure for testing whether your hypothesis is true or false.

The first step of understanding your experimental procedure involves identifying how you will change your independent variable (cause) and how you will measure the effect that this change has on the dependent variable (effect). To guarantee a fair test when you are conducting your experiment, you need to make sure that the only thing you change is the independent variable. And, all the controlled variables must remain the same. Only then can you be sure that the change you make to the independent variable actually caused the changes you observe in the dependent variables. Remember you are testing a cause and effect relationship.

Scientists run experiments more than once to verify that results are consistent. In other words, you must verify that you obtain similar results every time you repeat the experiment. This insures that the answer to your question is not just an accident. Each time that you perform your experiment is called a **run** or a **trial**. So, your experimental procedure should also specify how many trials you intend to run. Most teachers want you to **repeat your experiment a minimum of three times**. Repeating your experiment more than three times is even better, and doing so may even be required in some experiments. In some experiments, you can run the trials all at once. For example, if you are growing plants, you can put three identical plants (or seeds) in three separate pots and that would count as three trials. In experiments that involve testing or surveying different groups of people, you will not need to repeat the experiment multiple times; check with your teacher if you are not sure about your project's trial requirements.



Repeat your experiment a minimum of three times **OR** sometimes you can run three trials all at once.

The procedure should also include a data table to record the results (measurements and observations) from all the trials.

A little advance preparation can ensure that your experiment will run smoothly and that you will not encounter any unexpected surprises at the last minute. You will need to prepare a detailed experimental procedure for your experiment so you can ensure consistency from beginning to end. Think about it as writing a recipe for your experiment. This also makes it much easier for someone else to test your experiment if they are interested in seeing how you got your results.

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DIRECTIONS Use the checklist below to help you make the procedure as detailed as possible (edit the steps as necessary), and be sure you can make it easy for someone else to duplicate your experiment exactly!

What Makes a Good Experimental Procedure?	YES	NO
• Is the procedure written as a step-by-step recipe? (numbered chronologically and detailed) • How many parts (subheadings) does the procedure have? _____ Please list below:		
• If your project has safety concerns; does the procedure include ***adult supervision***? • Where? STEP(s) # _____		
• Does the procedure describe what is being changed (independent variable)? • Where? STEP(s) # _____		
• Does the procedure describe what is the effect (dependent variable = results = data)? • Where? STEP(s) # _____		
• Does the procedure describe what must be kept the same (controlled variables)? • Where? STEP(s) # _____		
• Does the procedure specify how many times to repeat the experiment (trials)? • How many trials are required? _____ • Where? STEP(s) # _____		
• Can the trials be done at the same time? • Where? STEP(s) # _____		
• Does the procedure include a data table? (a chart to record the results from the trials) • Where? STEP(s) # _____		
• Does the procedure include how to analyze the results (create a graph to compare results)? • Where? STEP(s) # _____		

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