

Checklist: Key Elements of the Experimental Procedure

- ✓ Describe and determine the size of all experimental and control groups
- ✓ A step-by-step list of everything you must do to perform your experiment. Think about all the steps that you will need to go through and record exactly what will need to be done in each step.
- ✓ Explain how you will change your ONE and ONLY independent variable and HOW you will measure that change
- ✓ Explain how you will measure the resulting change in the dependent variable(s)
- ✓ Explain how you will keep the controlled variables the same. (Example: if you planned to keep the temperature the same throughout the experiment: explain how you would do this, and how you would check that it was the same.)
- ✓ Specify how many times you intend to REPEAT your experiment (how many trials? Remember - at least three!)

When you're done...

Ask yourself: "*Could a stranger off the street come in and duplicate my experiment?*" That's the goal!



For an example, see the back of this page...

Example - Experimental Procedure

Materials List

- CD player & a CD (low drain device)
- Three identical flashlights (medium drain device)
- Camera flash (high drain device)
- AA size Duracell and Energizer batteries
- AA size of a "heavy-duty" (non-alkaline) battery (I used Panasonic)
- Voltmeter & a AA battery holder
- Kitchen timer

Experimental Procedure

1. Number each battery so you can tell them apart.
2. Measure each battery's voltage by using the voltmeter.
3. Put the same battery into one of the devices and turn it on.
4. Let the device run for thirty minutes before measuring its voltage again. (Record the voltage in a table every time it is measured.)
5. Repeat #4 until the battery is at 0.9 volts or until the device stops.
6. Do steps 1-5 again, three trials for each brand of battery in each experimental group.
7. For the camera flash push the flash button every 30 seconds and measure the voltage every 5 minutes.
8. For the flashlights rotate each battery brand so each one has a turn in each flashlight.
9. For the CD player repeat the same song at the same volume throughout the tests.