

HOW TO: SCIENCE

STEP #1: THE PROBLEM

-AFTER MAKING SOME OBSERVATIONS...

- 1.) WHAT IS GOING ON HERE?
- 2.) WHAT DO I WANT TO KNOW?
- 3.) CAN THIS BE TESTED BY WAY OF AN EXPERIMENT?
- 4.) FORM INTO A QUESTION
- 5.) IS THE QUESTION CLEAR AND CONCISE?

STEP#2: THE HYPOTHESIS

-YOU HAVE MADE OBSERVATIONS AND DONE SOME BACKGROUND INVESTIGATION...

- 1.) WHAT DO YOU THINK WILL HAPPEN?
- 2.) USUALLY THE "ANSWER" TO THE PROBLEM
- 3.) FORM INTO A COMPLETE STATEMENT AND SAY IT LIKE "IT IS"
EX: PLANTS WILL GROW TALLER WITH MIRACLE GRO.

STEP #3: PROCEDURE/EXPERIMENT

-YOU HAVE A HYPOTHESIS, NOW TEST IT...

- 1..) THIS SHOULD BE A STEP-BY-STEP NUMBERED LIST (NOT PARAGRAPH) OF WHAT YOU WILL DO BEGINNING WITH PUTTING ON SAFETY EQUIPMENT
- 2.) YOU NEED TO BE *VERY SPECIFIC*, SOMEONE ELSE SHOULD BE ABLE TO TAKE YOUR PROCEDURE AND DO THE EXACT SAME EXPERIMENT
- 3.) TRY TO THINK THOUGH POSSIBLE SCENARIOS AND SAFETY CONCERNS
- 4.) THINK ABOUT ALL POSSIBLE MATERIALS THAT MIGHT BE NEEDED
- 5.) HOW MANY TIMES WILL YOU REPEAT YOUR EXPERIMENT?
- 6.) WHERE WILL YOU CONDUCT YOUR EXPERIMENT?
- 7.) WHAT IS YOUR CONTROL?

STEP #4: COLLECTION OF DATA

-YOU HAVE DONE YOUR EXPERIMENT AND HAVE GATHERED SOME INFO...

- 1.) ORGANIZE THE DATA, USUALLY INTO A GRAPH, CHART, OR BOTH
- 2.) MAKE SURE ALL UNITS ARE PRESENT
- 3.) NEATNESS DEFINITELY COUNTS, COULD SOMEONE ELSE UNDERSTAND YOUR DATA

STEP #5: ANALYZE AND CONCLUDE

- 1.) DID YOU PROVE OR DISPROVE YOUR HYPOTHESIS?
- 2.) A SUMMARY OF WHAT YOU DID, WHAT YOU SAW, AND WHAT YOU LEARNED
- 3.) WHAT WOULD YOU CHANGE IF YOU DID THIS EXPERIMENT AGAIN?
- 4.) WAS THERE ANYTHING UNEXPECTED? DO YOU HAVE AN EXPLANATION?
- 5.) WHAT WERE YOUR SOURCES OF ERROR?

