BETA SESSION

All scientific experiments must contain a *CONTROL* group and at least one *EXPERIMENTAL* group.

EXPERIMENTAL group: A group where the variable under consideration is present and changed from experiment to experiment.

CONTROL group: A group where the variable under consideration is either absent or it is not changed from experiment to experiment. The *CONTROL* is necessary so we have a baseline to compare against our various experiments…

Note that it is critical that only ONE variable be present and changed in each experiment. If we want to test 10 different variables: we need at least 10 different experiments. If we want to test one variable, but change it 10 times: we need at least 10 different experiments.

TASK β-1: Recall the list of variables and hypotheses from your ALPHA Session. For EACH of your hypotheses, answer the following:

1) How do you propose we manipulate the variable being tested in the EXPERIMENTAL group?
   - Example: If students decided TEMPERATURE was the variable to be tested, and they had determined the variable should range from -87° to +20° C. Do they:
     1) Do one experiment which is always @ -87° C, and another which is always @ +20° C ? Or,
     2) Do one experiment which is -87° C for half the Martian day, then instantly raise it to +20° C for the other half? Or,
     3) Do one experiment which is -87° C for half the Martian day, then slowly raise it to +20° C for the other half? Or,
     4) Do multiple experiments, each fixed at a different temperature between -87° C and +20° C?
2) How do you propose we construct the CONTROL?
   - Example: In the hypothetical experiment above, TEMPERATURE was the variable being tested. In the CONTROL, the variable (TEMPERATURE) can't be "absent", so the students would have to make sure it was not changed from experiment to experiment. But if we want to maintain a stable temperature as our CONTROL, what should that stable temperature be? 0° C, +20° C, "standard" temperature (+25° C)?