THIS WEEK'S "PROJECT POTENCY" FOR THE 2019 CALVARY CHRISTIAN SCHOOL SCIENCE SHOWCASE-

VICTORY WITH VARIABLES: THE DIFFERENCE BETWEEN A PROJECT AND A PRESENTATION

If I were to ask two people who claim to be *Minecraft* gamers about red stone. One clearly explained all the ins & outs and the applications of red stone and the other knew about, say, grass- who would you truly consider the real gamer!? Or, if two people said they "got game" when it came to basketball, but only one knew the ins & outs of setting up a play with the team, or they knew the sign language for every foul- who would you look to for advice on how to improve your skills?

There is a difference between a science *presentation* and a science **project**. Both look great on the display table, but the blue- ribbon projects will be the ones that have real data collected from an actual **experiment**. No matter how cool or beautiful the diorama of a volcano; how neat the display board; how inspiring the report or how spectacular the explosion- without variables; there's still no experiment. **Variables** are elements and processes you control or measure that actually show you something you may or may not have known before. There are probably some presentations that can get a red ribbon but a project that may not be as dramatic in its performance may still get the blue ribbon because it included an actual experiment. An experiment is a key part of a project given and thoroughly explored by way of the *scientific method*.

There are three types of variables that should be included in your investigation. These include typically multiple **controlled variables**; ONE **independent variable** and the overall results revealed in the specific and measureable **dependent variable**. Variables that you do not allow to be changed are known as controlled variables. You make extra effort to secure a closed environment where everything but one thing is exactly the same. Right off you can infer that in order to have elements of an investigation that do not change, there must be one element that you purposefully do change. This is the independent variable. It is the one thing you change. There can be only one because if there are two or more, the whole experiment is no longer pure- it becomes too askew to make any clear conclusion. In order to discover data or make conclusions concerning *the* independent variable, there is always something that you measure or observe to help you come to any conclusion. That measureable factor is the dependent variable.

Imagine water being displaced in a container by some object. In order to measure the volume of the water displaced, the original amount of water, a certain temperature, in 3 separate but *identically* – sized containers must be used. Such factors are *controlled* variables. The amount the water raises in the container would be what you actually measure. This is your dependent variable because it would all *depend* on the mass of the object. The independent variable would be the object(s) themselves. You would choose a variety of different massed objects so that you could change the amount the water raises. Even though you chose a number of different objects, they were all chosen for the benefit of discovering that one *independent* variable concerning mass' effect on water (raising it).

Make your project more POTENT by being sure it is an investigation, using the scientific method wherein you can *compare* variables!