### Variables

Score Sheet - Worth 4 Points, scored by HSTA Teacher, Approved by CRA

* *Correct independent variable.* 
  + measured, manipulated, or selected by the experimenter to determine its relationship to an outcome
  + **Experimental, Manipulated, Treatment, Grouping Variable**
* *Correct dependent variable.*
  + observed and measured to determine the effect of the independent variable
* *Correct control variables.*
  + the group that has no ‘treatment’ so you can use it to compare to the ‘treatment’ groups to observe a change
  + not all projects have a control variable. If there is no control, state “no control”
* *Correct constant variables.*
  + elements of the project that stay the same throughout the project – like water temperature, survey questions, etc.
  + list at least 3 constants
  + all projects have constant variables

Tips

1. IV is what you change/set, DV is what you measure
2. Control gets no ‘treatment’, constants stay the same throughout the experiment

Examples

* **Among HSTA students in WV, does McDonalds or Burger King have a better tasting hamburger?**
  + **IV – McDonalds and Burger King hamburgers**
  + **DV – taste test results**
  + **Control – None**
  + **Constants – condiments on the hamburger, all HSTA students from WV, taste test scale**
* Is there a link between hours of television viewing and obesity rates in children aged 8-14?
  + **IV– number of hours watching TV**
  + **DV – obesity rate**
  + **Control – None**
  + **Constants – obesity scale, the age of children, how the number of TV hours are recorded**
* Do females age 16-18 score higher than males age 16-18 on the ACT during 2016?
  + **IV – Gender**
  + **DV – ACT Score**
  + **Control – None**
  + **Constants – age, ACT test (may have not taken test on the same day but during the same year), same year**
* Will plants have a higher growth rate with water supplements Sea Veg, Seachem, or Natural Leaf after 6 weeks?
  + **IV – water supplement treatment:** Sea Veg, Seachem, or Natural Leaf
  + **DV – growth rate**
  + **Control – plants with just water**
  + **Constants – plant type, plant food, plant environment, ruler to measure height, number of plants in each treatment, time**