### Research Question

Score Sheet - Worth 3 Points, scored by HSTA Teacher, Approved by CRA for 11th and 12th graders

* *Research question is a focused and specific question.*
  + Is not too broad or general.
* *Research question is researchable.*
  + Has a clear meaning of what you want to research.
  + It is not a question you can Google.
* *Research question is measurable.*
  + It clearly explains what you plan to measure and how.

**Tips**

1. Research question should be clear and focused. They “[… should address what the variables of the experiment are, their relationship, and state something about the testing of those relationships.” (Thompson Writing Group: Duke University, 2014)
2. Stay away from common sense questions – the more specific you are in your research the more likely common-sense answers will not relate.
3. Your research question is the center of your research project and directs hypothesis, variables, procedures and your conclusions.
4. If you have trouble coming up with a research topic “Choose a general topic of interest, and conduct preliminary research on this topic in current periodicals and journals to see what research has already been done. This will help determine what kinds of questions the topic generates.” (Thompson Writing Group: Duke University, 2014)
5. “[… research question should address what the variables of the experiment are, their relationship, and state something about the testing of those relationships.” (Thompson Writing Group: Duke University, 2014)
6. Explain on your slide how addressing this research question will improve your community. How will your project make your community better?

Researchable/Measurable Research Question Examples

* **Does McDonald's or Burger King make a better burger?**
  + **This question is not researchable as it is worded because it has no concrete meaning. What does "better" mean? Better in terms of nutrition? Better tasting? Better value? Fewer calories? Better for making your kids happy? This question could become researchable only if you define its terms.**
* Is there a link between hours of television viewing and obesity rates in children aged 8-14?
  + This question is researchable. It has a clear meaning of who and what you will research and explains what you will measure.
* Are females smarter than males?
  + This question explains the variables that will be measured: gender and intelligence; but it does not explain how, needs more details.
  + Revised question: Did females age 16-18 score higher than males age 16-18 on the ACT during 2016?
* Will plants grow faster with water or no water?
  + This is common sense because plants need water. However, if you were to change the water to gray water or different natural water supplies or different concentrations of water supplements this would be a researchable project.

Thompson Writing Group: Duke University. (2014). *What makes a good research question?*  Retrieved August 2016 from http://twp.duke.edu/uploads/media\_items/research-questions.original.pdf

#### Stats Chart

Use the stats chart to help create a research question

* Categorical variables: can take only a limited number of values (often just two). Example: Survival (Values could be Survived/Died), Answer (e.g., Yes/No), Gender (Male/Female).
* Continuous variables: can potentially take ANY value between some lower and upper bound. Example: Weight, Height, Speed, Test Score (if numerical).

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| --- | --- | --- | --- | --- | --- |
|  | |  | | Dependent Variable (Y) | |
|  | |  | | Categorical | Continuous |
| Independent Variable (X) | Categorical | | **G-test/Chi Square**   * Difference among gender (male/female) and if they have had the flu shot (Yes/No) * Difference among grade levels (ninth, tenth, eleventh, and twelfth) and if they are present at an event (Yes or No) | | **ANOVA/T-Test**   * Difference among gender (male/female) and social support scores * Difference among age groups (13-19; 20-29; 30-39) and weight (examples: 100, 110, 150, 97) |
| Continuous | | **Logistic Regression**   * Does body weight (example 100, 97, 250, 116) influence heart attacks (Yes/No) | | **Correlation** (Tells how much one variable tends to change when the other changes)   * Does rain fall (example 11, 12, 13 inches) relate to temperature (example 60, 80, 75 degrees)   **Regression** (IV influences DV; looking for a cause and effect)   * Weight (example 100, 110, 120, 97) influence cholesterol level (example 160, 170, 180 mml) |