Creating a Research Question
Five steps

- What has already been answered in the literature?
- What questions may or may not be definitively answered?
- Keep it simple. You’re not changing the world with one study. Research is a collective effort.
- Hypotheses are based on research questions.
- Don’t change research questions based on the results. It’s unethical.
What has already been answered in the literature?

- Find a topic you are interested in
- What are the unanswered questions?
  - Simple?
  - Complex?
- Keep track of all questions and which article they came from
What questions may or may not be definitively answered?

◊ Whenever a question arises
  ◊ Write down the question
  ◊ Cite the location of the question
  ◊ Search for the answer of the question
    ◊ Answered? Great
    ◊ Unanswered? Great
    ◊ Ambiguous? Great
  ◊ Take the unanswered and ambiguous questions to the next level
Keep it simple. You’re not changing the world with one study. Research is a collective effort.

- Try to come up with a few questions about your research topic
- It needs to be as simple as it can be to still maintain its purpose
- For example:
  - What are the changes in neuroplasticity when someone is exposed to alcohol in adolescence?
  - The question is simple yet specific to a specific function of the brain
Hypotheses are based on research questions.

- A hypothesis is a prediction for a study
  - These are based on research questions
- Research Question: “Do potatoes grow faster when Gatorade is added to the water?”
- Hypothesis: “Potatoes will grow faster when Gatorade is added to the water.”
  - The hypothesis takes the research question and turns it into a statement about what will happen in the study
  - The hypothesis may be wrong
Don’t change research questions based on the results. It’s unethical.

◊ Finding non-significance can sometimes hurt but we must remain ethical
  ◊ Always have research questions BEFORE you collect data
  ◊ The data you collect will be based on your research questions
  ◊ The analyses you run will be based on your research question
◊ NEVER change your research question to fit the narrative of your data
  ◊ It is unethical
Research Question Semantics

- Your research question verbiage will highly influence what type of statistical test you should run
- For example:
  - Is there a difference between blue ghosts and green ghosts on levels of spookiness?
    - Independent samples t-test
  - Is there a relationship between blue ghosts and green ghosts on levels of spookiness?
    - Pearson's r correlation coefficient
  - Can we predict the spookiness of a ghost depending on if it is blue or green?
    - Simple linear regression
Research Question Semantics

- While the research question will typically dictate what type of analysis you will use, there are other factors
  - The data that was collected
  - How the data is set-up
  - Secondary questions that arise after your initial analyses
Practice

- Create a research question from one of the following topics
  - Fruits and vegetables
  - College education
  - Online shopping
  - Economics

- Create a hypothesis for a hypothetical research study