

**Research planning workshop** – Energy Systems, fall 2004 week 4 - EJZ

By now, you have identified a topic of interest for a possible research project, and started to think about some questions you might investigate. Today you will take that process a step further. Goals of today's workshop include refining your questions and **articulating plausible, testable hypotheses**.

Name: \_\_\_\_\_ Teammates \_\_\_\_\_

1. Discuss your research interest with a classmate for 3-5 minutes, listen to them for 3-5 minutes, then briefly **describe your research interest** below.
  
2. Discuss with a classmate (for 5 minutes) questions you might want to investigate. Try to think of questions that you might actually be able to experiment on or calculate about. Listen to your classmate for 5 minutes. Then list your few **best candidate research questions** below.

A. \_\_\_\_\_ ?

B. \_\_\_\_\_ ?

C. \_\_\_\_\_ ?

- 3A. For any **one of your candidate questions**, discuss with a classmate (for 5 minutes) possible hypotheses that might answer your question. Listen to their ideas for hypotheses on their own question for 5 minutes. **Restate your question**, possibly revised, below:

\_\_\_\_\_ ?

Then articulate three hypotheses that might possibly answer your question:

- i. Your favorite hypothesis:
  
- ii. An alternative hypothesis:
  
- iii. A null hypothesis:

**Tomorrow**, meet one or more classmates and **repeat part 3** for your other two questions. Be open to modifying your question, as an outcome of this discussion. Again, generate three hypotheses for each question (see next page).

4. Write down your questions and hypotheses, and **post them to WebX this Friday**. You can copy and edit this document from our program webpage if you like, and paste it as an attachment to WebX.

(Continue Part 3-4 outside class, with a classmate or two)

3B. For a **second candidate question**, discuss with a classmate (for 5 minutes) possible hypotheses that might answer your question. Listen to them for 5 minutes. Restate your question, possibly revised, below:

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Then articulate three hypotheses that might possibly answer your question:

iv. Your favorite hypothesis:

v. An alternative hypothesis:

vi. A null hypothesis:

3C. For a **third candidate question** discuss with a classmate (for 5 minutes) possible hypotheses that might answer your question. Listen to them for 5 minutes. Restate your question, possibly revised, below:

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Then articulate three hypotheses that might possibly answer your question:

vii. Your favorite hypothesis:

viii. An alternative hypothesis:

ix. A null hypothesis:

5. **Which question seems like the best candidate** for you to investigate next quarter? Why?

In the next few weeks, you will focus in on one good, specific question, at least three plausible hypotheses, and at least one good, specific plan for testing your hypotheses.