

Experimental Design Scavenger Hunt

Go to <http://support.sas.com/resources/papers/sixsigma1.pdf>

1a. Why is planning an experiment important?

1b. What is Six Sigma?

1c. According to the authors of this website, What are four steps to designing an experiment?

1d. What is a population?

1e. What is a sample?

1f. In addition to specific questions that a researcher plans to examine, What else should the researcher identify?

1g. What are the results from a sample used for? _____

1h. Give four steps to experimental design_____

1i. Name 3 variables listed that should be held constant._____

1j. What action do constants increase?_____

Go to <http://www.stat.yale.edu/Courses/1997-98/101/expdes.htm>

2. What is a completely randomized experiment?

<http://ecoursesonline.iasri.res.in/mod/page/view.php?id=15578>

What are the advantages and disadvantages?

Go to

<http://sociology.about.com/od/Statistics/a/Descriptive-inferential-statistics.htm>

3. What are examples of descriptive statistics?

What is inferential statistics? What is the difference?

Go to <http://www.stat.yale.edu/Courses/1997-98/101/expdes.htm>

4a. What is the difference between an experiment and an observational study? _____

4b. What is a factor? Explain what is meant by levels, give an example.

4c. Most good experimental designs contain **CRR**, Control, Randomization, and Replication. Explain each of these and why they are important to the experiment. _____

4d. Define Simple, Stratified and Multistage Random Sampling. Explain each and then give three reasons to use Stratified Random Sampling.

Go to <http://www.wisegeek.com/what-is-statistical-sampling.htm>

5. List three additional kinds of sampling and describe them. _____

Go to <http://www.deweydefeatstruman.com/>

6. What major newspaper reported the incorrect results for the 1948 election? _____

Go to <http://stattrek.com/AP-Statistics-2/Experimental-Design.aspx?Tutorial=AP>

7a. What is Block Design and when is it used?

<http://surfstat.anu.edu.au/surfstat-home/2-1-2.html>

Draw a diagram of an example of a block design.

Go back to <http://stattrek.com/AP-Statistics-2/Experimental-Design.aspx?Tutorial=AP>

7b. What is a Matched Pairs design?

WATCH THE VIDEO

Draw the 3 types of design: Completely Randomized design, Randomized Block Design, and Matched Pairs Design. Label each so you remember what they did.

7c. Go to: <https://www.youtube.com/watch?v=bARoStpERuw>
<https://www.youtube.com/watch?v=fyxBRwsRVow> (only watch the shampoo example)
Watch these two videos. Explain the difference between Matched Pairs 1 and Matched Pairs 2 Designs.

7d. Blocks perform a similar function in experimental design as _____ perform in sampling. Both divide observations into subgroups. However, they are not the same. Blocking is associated with experimental design, and stratification is associated with _____.

Go to <http://www.measuringu.com/blog/statistically-significant.php>

8a. What is meant by the term "Statistically Significant"?

8b. What does "Statistically Significant" not mean? Explain.

8c. In the "Conclusion and Summary" read and explain how sample size affects statistical significance.
