Unit #1: Data Analysis
Lesson #13: Confidence Intervals For Proportions

EQ:

RECALL: Examples of: _____Statistics_____ Parameters___

New Notation:

_____ --- _____ proportion   _____ --- _____ proportion

_____ is used as an _____ for ____

$\hat{p}$ =   X = _____   n = _____

q =   or q =

General Formula: Confidence Interval for Proportions: _____

Since we are back to using a _____ distribution (____-values) we **do not** have to worry about
_____.

RECALL:
Common Confidence Intervals: _____

- See Table C for critical values. Which value will you use for confidence intervals for proportions?

   90% _____   95% _____   99% _____

- For _____ you will always use the _____
   of the t-distribution table.

   ➢ Statement to Interpret Confidence Intervals for Proportions:

   "We are _____% confident that the true population proportion of _____[*in context*

   of problem] will be between _____% and ____%."

z-distributions ➡️ _____   t-distributions ➡️ _____

- In Class Examples. Place your work for these problems on **notebook paper**. **Your work should include: all values necessary, defined using correct notation, work showing any calculations, confidence intervals, and conclusion statement (see templates given in notes).**

1. In recent survey of 150 households, 54 had central air conditioning. Find p-hat and q-hat, where p-hat is the proportion of households that have central air conditioning.

2. A sample of 500 nursing applications included 60 from men. Find the 90% confidence interval of the true proportion of men who applied to the nursing program.

3. A survey of 200,000 boat owners found that 12% of the pleasure boats are named *Serenity*. Find the 95% confidence interval of the true proportion of boats named *Serenity*.

4. A U.S. Travel Data Center's survey of 1500 adults found that 42% of respondents stated that they favor historical sites as vacations. Find the 95% confidence interval of the true proportion of all adults who favor visiting historical sites as vacations.

5. In a survey of 1004 individuals, 442 felt that President George W. Bush spent too much time away from Washington while he was in office. Find a 95% confidence interval for the true population proportion who think Bush spent too much time away from Washington while he was in office.

6. In a recent study of 75 people, 41 said they were dissatisfied with their community's snow removal service. Find the 95% confidence interval of the true proportion of individuals who are dissatisfied.

➢ **Assignment:** Practice Worksheet: Confidence Intervals for Proportions
     More Practice: CLT and Confidence Intervals