The Spelling Bee

Strands:

Interpret Data	X
Make Inferences and Justify Conclusions	X
Understand Probability	
Use Probability to Make Decisions	X

How well do you spell? What are hard words for you to spell? Do males and females differ in spelling accuracy?
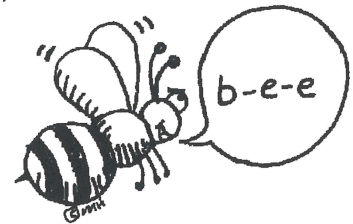
Materials:

- Paper
- Pencil
- Calculator

Most Often Misspelled English Word

Here's a fun game for all you word geeks: What is the most frequently misspelled word? (And, no, it's not "misspelled," although that would be funny if it were.)

It's "supersede." That's the word from *Collins Dictionaries* of Britain, which admittedly has made this pronouncement based only on an estimation. Still, the company says "supersede" is misspelled one out of every 10 times it is used because many other words with phonetically similar endings, such as "intercede" and "precede," are spelled with the letter "c" instead of "s," reports *The Daily Telegraph*.

Using a software program that analyzed thousands of documents on the Internet, including published books, blogs and news articles, the *Collins Dictionaries* researchers were able to identify "supersede" as the most misspelled word.

Runners-up are: "conscience," "indict," "foreign," "mortgage," and "phlegm." These are challenging to writers since the spelling of each is different from their phonetic pronunciations.

"The real spelling problems occur when people have [learned] the rules or have a bit of knowledge, but then make mistakes in how they apply [them]," Ian Brookes, the managing editor of dictionaries at *Collins*, told the *Telegraph*.
--From the editors at Netscape

Where?

Outside	
Inside	X
On-line	
On-site	

1. We are investigating the question: Is the percentage of times that the word "conscience" is misspelled different for males and females?

   Step 1: Determine null and alternative hypotheses.

   Step 2: Use the sample data provided below to find the appropriate test statistic. (Assume the data come from independent random samples of males and females.)

   Results for males: 10 out of 19 males misspelled the word "conscience."

   Results for females: 8 out of 33 females misspelled the word "conscience."

   Step 3: Assuming the null hypothesis is true, find the p-value.

   Step 4: On the graph below, sketch the appropriate area that corresponds to your p-value.
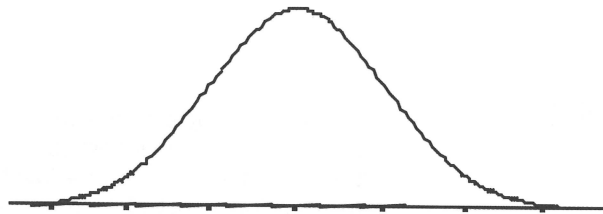
   Step 5: Decide whether or not the result is statistically significant based on the p-value. Use an alpha-level of 0.05.

   Step 6: Report your conclusion in the context of the problem.

2. Construct a 95% confidence interval for the difference between the proportions of times "conscience" is misspelled for males vs. females. Interpret the confidence interval in context of the problem. Compare this result with the conclusion from the hypothesis test.