Name: _____ Hour: _____ Date: _____

Guess the Mystery Proportion

Mrs. Gallas wants to implement a new reward system. When a student does something great, they randomly pick a bead from the bead jar. If the bead is red, they get a piece of candy. If not, they don't win a prize. The question is, what are the chances that a student chooses a red bead? Each group will get a sample of beads and will create a **confidence interval** to estimate the true proportion of red beads. The group with the smallest interval that captures the true proportion wins a prize!

1. You will select a random sample of 20 beads from the jar. Calculate the proportion of beads that are red (write this as a decimal).

Proportion red:_____. This is your ***point estimate*** for the true proportion of red beads.

2. Identify the population, parameter, sample, and statistic.

Population:_____ Parameter:_____

Sample:_____ Statistic:_____

3. Now you are going to change your point estimate into an interval of values by adding and subtracting some value from your point estimate (the number you add and subtract is called your ***margin of error***). You can choose any amount to add and subtract, but remember, the smallest interval that captures the truth is the winner. What margin of error do you want to use? Why?

4. Use your point estimate and chosen margin of error to write an interval that you think contains the true proportion of red beads.

5. How confident do you feel that your interval captures the true proportion? Answer with a percentage.

6. One of the groups got (0.27, 0.33) as their interval. What was their point estimate? What was their margin of error?

7. One group claims that the true proportion of red beads 0.25. Does your interval support or deny this claim? Why?

Name: _____ Hour: _____ Date: _____

The Idea of a Confidence Interval

Important ideas:

Check Your Understanding

A random sample of 100 adults are asked if they pay for monthly subscriptions that they do not use, like a magazine, app, or online program simply. Many do, because they have never taken the time to cancel the subscription. A 95% confidence interval for the proportion of adults who to pay for subscriptions they do not use is 0.352 to 0.548.

a. Interpret the confidence interval.

b. Calculate the point estimate and the margin of error.

c. Based upon this survey, a reporter claims that a majority of adults continue to pay for monthly subscriptions they do not use. Use the confidence interval to evaluate this claim.