**Open the TI-Nspire document *Flipping Coins StaRT***

Shelly is going to flip a coin 50 times and record the percentage of heads she gets. Her friend Diane is going to flip a coin 10 times and record the percentage of heads she gets.

1. Which person do you think is more likely to get 20% or fewer heads? Explain the reasoning behind your choice.

To help you answer this question, we need to look at the “typical variability” from random sample to random sample. We expect around half of the coin tosses to be heads, but not all samples will have exactly 50% heads.

1. How far from 50% heads do samples typically vary?

On page 1.5, the TI-Nspire will find the percent of heads in each of 100 samples of the size you put in parentheses and display them in a plot. These plots are referred to as approximate sampling distributions. Explore with this program using different sample sizes.

1. What conjectures can you make about the effect of changing sample size on the sampling distribution?

*Now, let's revisit the original question.*

Shelly is going to flip a coin 50 times and record the percentage of heads she gets. Her friend Diane is going to flip a coin 10 times and record the percentage of heads she gets. Which person is more likely to get 20% or fewer heads?

1. Has your answer changed? Explain how the sampling distributions support your current answer to the question.