

## 7.2 Sampling Distribution of a Sample Proportion

### Learning Objectives:

1. Find the mean and standard deviation of the sampling distribution of a sample proportion  $p$ . Check the 10% condition before calculating  $\sigma_{\hat{p}}$ .
2. Determine if the sampling distribution of  $\hat{p}$  is approximately Normal.
3. If appropriate, use a Normal distribution to calculate probabilities involving  $\hat{p}$ .

**Vocabulary:** Normal approximation

Goal:

*Read 440–445*

Based on the Reese's Pieces Applet activity, describe what we know about the shape, center, and spread of the sampling distribution of a sample proportion.

shape

center

spread

When is it OK to say that the distribution of  $\hat{p}$  is approximately Normal?

What are the mean and the standard deviation of the sampling distribution of a sample proportion? Are these formulas on the formula sheet? Are there conditions that need to be met for these formulas to work?

*Read 445–446*

**Alternate Example:** The superintendent of a large school district wants to know what proportion of middle school students in her district are planning to attend a four-year college or university. Suppose that 80% of all middle school students in her district are planning to attend a four-year college or university. What is the probability that an SRS of size 125 will give a sample proportion of at most 75%?