

The Confidence Intervals applet will quickly generate many confidence intervals. In this activity, you will use the applet to investigate the idea of a confidence level.

1. Go to **[www.rossmanchance.com/applets](http://www.rossmanchance.com/applets)** and launch the Simulating Confidence Intervals for a Population Parameter applet.
2. Using the default settings of  $\pi = 0.5$  and  $n = 100$ , set the number of intervals to 100 and the confidence level to 95%. Press “Sample” many times. What is the capture rate for these intervals?
3. Keeping the other values the same, change the confidence level to 50%. Press “Sample” over and over. What is the capture rate for these intervals? What happened to the length of the intervals?
4. Summarize what you have learned about the relationship between the confidence level and the length of a confidence interval for a fixed sample size.
5. Change the confidence level back to 95% and increase the sample size to 400. How does increasing the sample size affect the length of the confidence intervals? How does increasing the sample size affect the confidence level (capture rate)?