

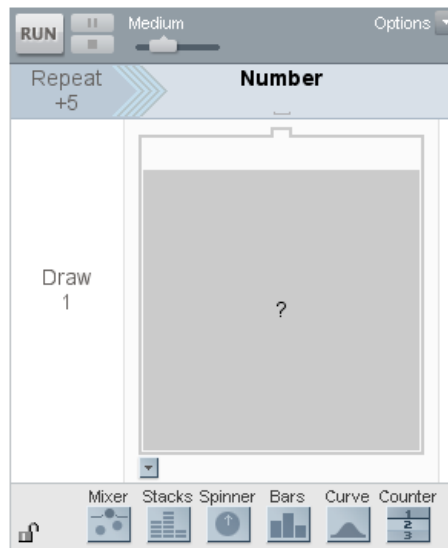
# Mystery Mixers

Name(s) \_\_\_\_\_

In this activity, you will try to guess where the center is for a distribution of numbers in a mixer. The contents of the mixer are hidden, but there are 500 positive integers, and their values range from 0 to 100.

Your job is to guess how those 500 numbers are distributed and where the center clump of numbers is located. For example, you might decide that the numbers are centered in a clump that is between 40 and 50.

To make this guess, you will draw samples from the mixer. Each time you click the **RUN** button, five more numbers are drawn and added to your plot. Keep clicking the **RUN** button until you think you can make a good guess about where the numbers are centered.

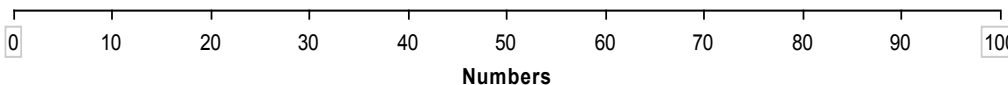


Here's the catch: Let's say that each time you click the **RUN** button, it costs you \$1. Can you accurately locate the center clump for less money than anyone else in your class?

1. Open the TinkerPlots document **Mystery Mixer 1.tp**.
2. Click the **RUN** button to take a sample of five numbers. Keep clicking **RUN** to add five more numbers to your plot until you think you can make a good guess about where the 500 numbers in the mixer are centered.
3. In the space here, fill in the number that appears in the upper-right corner of your plot. This is the sample size, the number you want to keep as small as possible. Also draw vertical lines on the axis to show where you think the center clump is located.

## Mystery Mixer 1

$N =$

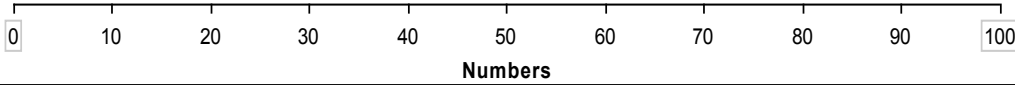


4. Repeat the steps for Mystery Mixers 2, 3, and 4, using the TinkerPlots documents **Mystery Mixer 2.tp**, **Mystery Mixer 3.tp**, and **Mystery Mixer 4.tp**. In the space provided, record the sample size and draw vertical lines on the axis to indicate where you think the center clump is for each Mystery Mixer.

# Modeling a Candy Factory (continued)

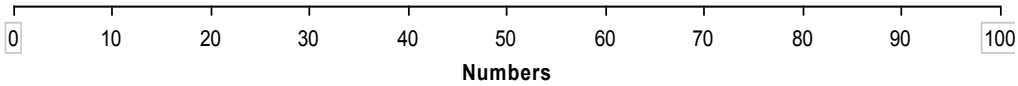
## Mystery Mixer 2

$N =$



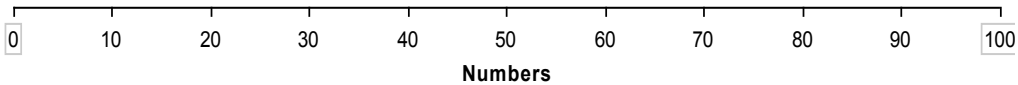
## Mystery Mixer 3

$N =$



## Mystery Mixer 4

$N =$



5. Briefly explain how confident you are in your answers and describe what strategies you used to try to spend the least amount of money.