



In these activities you will generate random samples from a population and generate statistics based on populations. After completing the activities, discuss and/or present your findings to the rest of the class.



### Activity 1 [Page 1.5]

1. A teacher decided to collect the homework from a random sample of four students each day rather than grading everyone's homework every day. On page 1.5, set  $n = 4$ .
  - a. Select **Draw** to see who will have to turn in their homework on Monday. Identify the students you think will be in the sample. Select **List** to check your thinking.
  
  - b. If a student is selected at the beginning of the week to turn in their homework, do you think they are "safe" for the rest of the week? Use the TNS activity to support your answer.



### Activity 2 [Page 2.2]

1. Sampling can be used to analyze the way people write, for example, how many words they use in their sentences, or how big those words are. Lewis Carroll, the author of *Alice in Wonderland*, also wrote the poem *Jabberwocky*. All of the verses in the poem except the last verse (which repeats the first part) are below.

\1\Jabberwocky

'Twas brillig, and the slithy toves

Did gyre and gimble in the wabe:

All mimsy \2\were the borogoves,

And the mome raths outgrabe.

"Beware the Jabberwock, my son!

The jaws that \3\bite, the claws that catch!

Beware the Jubjub bird, and shun



The frumious Bandersnatch!”  
He took \4\his vorpal sword in hand;  
Long time the manxome foe he sought—  
So rested he by \5\the Tumtum tree  
And stood awhile in thought.  
And, as in uffish thought he stood,  
The \6\Jabberwock, with eyes of flame,  
Came whiffing through the tulgey wood,  
And burbled as it came!  
\7\One, two! One, two! And through and through  
The vorpal blade went snicker-snack!  
He left it \8\dead, and with its head  
He went galumphing back.  
“And hast thou slain the Jabberwock?  
Come \9\to my arms, my beamish boy!  
O frabjous day! Callooh! Callay!”  
He chortled in his joy.

- Suppose you are interested in the number of letters in the words from the poem above. What is the population?
- Rather than counting all of the letters in each word, you can take a sample and use the sample to estimate the number of letters per word. The poem has been divided into 9 lines that correspond to the 9 blocks. Work with a partner. Go to page 2.2, and set Block 9 and Cell 1. Select **Draw**. List the numbers displayed.
- Using the randomly generated numbers, find the word in Block 1 and Cell 8. Begin with the title of the poem and count a hyphenated word as one word.



## Choosing Random Samples

### Student Activity

Name \_\_\_\_\_

Class \_\_\_\_\_

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- d. Find the other randomly selected words. Use your sample to estimate the mean number of letters per word in *Jabberwocky*.
2. Remember that a number describing some aspect of a sample (e.g. maximum, mean, IQR) is called a *statistic*.
- a. What sample statistic did you find in the previous question?
- b. If you repeated the process of generating random numbers and using them to choose letters from each block as you did in the previous problem. Do you think you would get the same mean number of letters you did in part d above? Why or why not?
- c. Repeat the sampling process and verify your conjecture.
3. A city was considering whether to have people in a nine-block residential area switch from their own wells to city water. They wanted to randomly sample the homes, all single family, so they could get information from about 40 homes all together to help them make the decision. Use page 2.3 and describe how they might choose their sample.