

OVERVIEW

In this activity, students unlock a series of TinkerPlots samplers by identifying the commonly occurring letters in samples drawn from the spinner and rearranging them into the password that unlocks the sampler.

Activity Time: One class period

Objectives

- Understand that a randomly drawn sample gives useful information about a population.
- Understand that larger sample sizes tend to represent the population more accurately than smaller sample sizes.
- Have fun combining data analysis and word skills.

Common Core Standards Addressed

Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

Grade 7, Statistics and Probability Standard 1

Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.

Grade 7, Statistics and Probability Standard 2

Prerequisites

None

Materials

- Spooky Spinners worksheet (one copy per student)
- **Spooky Spinner 1.tp**
- **Spooky Spinner 2.tp**
- **Spooky Spinner 3.tp**
- **Spooky Spinner 4.tp**
- **Spooky Spinner 5.tp**

LESSON PLAN

These activities are fairly self-explanatory. They were created especially for use around Halloween and are intended to be a bit of fun, but they can be used at anytime. You might also consider making your own set of mystery spinners for a different holiday or event.

Each sampler has been built so that the probabilities for the letters that comprise the “spooky” word have a higher probability of being drawn than the other distractor letters. Each time the **RUN** button is clicked, another 20 samples are drawn and added to the plot. Students use the plot to identify the letters in the word (the highest stacks), rearrange them into a word, and then use this as the password to unlock the sampler. The target letters are often not apparent in the first twenty, or even forty, samples due to random variability.

Consider having students repeat the experiment after they have found the answer and can see the spinner. This will allow them to observe this variability.

To start over, students can go to the results table’s **Options** menu and choose **Delete all Results Cases**.

ANSWERS

6. bat (Spooky Spinner 1)
7. mask (Spooky Spinner 2)
8. witch (Spooky Spinner 3)
9. ghost (Spooky Spinner 4)
10. spider (Spooky Spinner 5)