

Name: _____

Lucky Charms Statistical Analysis

Objective:

I will collect and analyze data, calculate measures of central tendency and probability, and create graphical representations of data using a St. Patrick's Day theme.

Materials:

- Bags of Lucky Charms cereal (one small bag per group)
- Colored pencils or markers
- Calculators

Activity Setup:

Leprechaun Larry wants to know more about the distribution of marshmallow shapes in his Lucky Charms cereal. He's asked for your help to analyze the data and make some predictions.

Part 1: Data Collection and Organization









1. With your group, count and record the number of each marshmallow shape in your bag of Lucky Charms. Use the frequency table on the next page with the following categories:

- Hearts
- Stars
- Horseshoes
- Clovers
- Blue moons
- Rainbows
- Unicorns
- Any other shapes you find



2. Create a frequency table for your data.

MARSHMALLOW FREQUENCY TABLE

Shape	Total	Shape	Total
			
			
			
			

Total Marshmallow Count:

Part 2: Data Analysis

3. Calculate the following measures of central tendency for your data:
 - a) Mean number of marshmallows per shape (Round to the nearest hundredth):
 - b) Median number of marshmallows per shape:
 - c) Mode (list the marshmallow shape as well):

4. What percentage of the total marshmallows are clovers? Express the percentage to the nearest hundredth.

5. Create a bar graph representing the quantity of each marshmallow shape in the space provided. Label the axes and title the graph.

6. Create a pie chart showing the proportion of each marshmallow shape. Label each section and title the chart.

Part 3: Probability

7. If you were to randomly select one marshmallow from your bag, what is the probability of selecting:
 - a) A heart?
 - b) A clover?
 - c) Either a star or a horseshoe?

8. If you were to select two marshmallows without replacement, what is the probability of selecting two clovers?

9. Leprechaun Larry considers it extra lucky to find a rainbow marshmallow followed immediately by a unicorn marshmallow. What is the probability of this occurring if you were to pull out two marshmallows in a row?

Part 4: Class Data and Comparison

10. Collect data from all groups in the class. Calculate the mean number of each marshmallow shape across all bags. Round to the nearest tenth.

A. Heart:

E. Moon:

B. Star:

F. Rainbow:

C. Horseshoe:

G. Unicorn:

D. Clover:

H. Other Shape:

Total Mean Marshmallows per group:

11. How does your group's data compare to the class data? Are there any significant differences?

12. Based on the class data, predict how many of each marshmallow shape you would expect to find in a bag containing 300 marshmallows. Round to the nearest whole number.

A. Heart:

E. Moon:

B. Star:

F. Rainbow:

C. Horseshoe:

G. Unicorn:

D. Clover:

H. Other Shape:

Extension:

Leprechaun Larry wants to create a "super lucky" limited edition bag with 50% clovers. If a regular bag has 300 marshmallows, how many of each other shape should be included to maintain the same proportions as the class data (excluding clovers)?