**Probability Lesson**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Science/Math Question:** What is the probability (likelihood) of the cup landing on its side, bottom or top when flipped with the spoon? Use your knowledge of fractions to figure this out.

**Materials:** Styrofoam cup and plastic spoon

**Procedure:**

1. Place the cup bottom side down on the handle end of the spoon and flip the cup into the air.
2. Use a tally mark to record in the table below what side the cup lands on.
3. Repeat 9 more times.

**Data Table**

|  |  |  |
| --- | --- | --- |
| **How did the cup land?** | **Number of times**  (use tally marks) | **Fraction**  (write a fraction) |
| Top |  |  |
| Side |  |  |
| Bottom |  |  |

**Graph the data:**

1. What type of graph would you make for this data and why?
2. Give the graph a title.
3. Label the x and y axis and put in numbers on the y axis.
4. Graph the data

**Graph:**

Title \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Questions:**

1. How does the graph help you understand the data in the table?
2. What side did your cup land on the most? Why do you think this happened?
3. Do you think the group data will be similar to your data? \_\_\_\_\_\_\_\_\_\_ Why or why not?

**Group Data:**

Complete the table using the data for your group.

|  |  |  |  |
| --- | --- | --- | --- |
| **How did the cup land?** | **Number of times** | **Fraction** | **Percent** |
| Top |  |  |  |
| Side |  |  |  |
| Bottom |  |  |  |

1. How did your data compare to the group data? Explain with examples.
2. **BONUS** - Graph the group data.
3. How would you calculate the percentages for the class? (BONUS) Show all work?
4. A system is a set of things working together to do something. Explain how the spoon and cup is a system.
5. Probability is the likelihood of something happening. Explain the probability of the cup landing on its bottom. top or side?

**Homework Challenge:**

Change the spoon-cup system so that you change the probability of how the cup lands. Be creative and have fun. There are many ways to solve this problem. You may do whatever you like to the spoon or cup and you may use additional materials**. We will share these as a class.**

Once you have change the spoon-cup system test it ten times and record your data in the table below. Then graph the data and answer the questions.

**Data Table**

|  |  |  |
| --- | --- | --- |
| **How did the cup land?** | **Number of time**  (use tally marks) | **Fraction**  (write a fraction) |
| Top |  |  |
| Side |  |  |
| Bottom |  |  |

**Graph the data on the back page and answer the questions.**

1. How did you change the cup and spoon system? (you can also draw a diagram to show your changes)
2. How did the change you made affect the probability of the cup landing on its side, top or bottom? Use the data from before and after you made the change to support your claim.

**Graph (**Give the graph a title. Label the x and y axis and put in numbers on the y axis. Graph the data)

Title \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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