**MBF 3C1** Name: _____

# Experimental Probability

**Experimental Probability** is the chance of something happening based on experimental results. It can be calculated using the formula:

$$P = \frac{\#\text{ of favourable outcomes observed}}{\text{total }\#\text{ of observations}}$$

**Example 1**

A new cereal is giving away a prize with each box of cereal. There are 6 different prizes and you want to win all of them. How many boxes of cereal do you have to eat to win them all?

Complete an experiment using 1 die to determine if the prizes in the cereal box are worth it. Each roll signifies one cereal box and you must get each prize, numbered 1 through 6. Keep track of how many rolls it takes you to get all of the prizes 1 through 6. Repeat this simulation 10 times.

| Trial | Tally of Prizes Received | | | | | | Total # of Cereal Boxes (frequency) |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |

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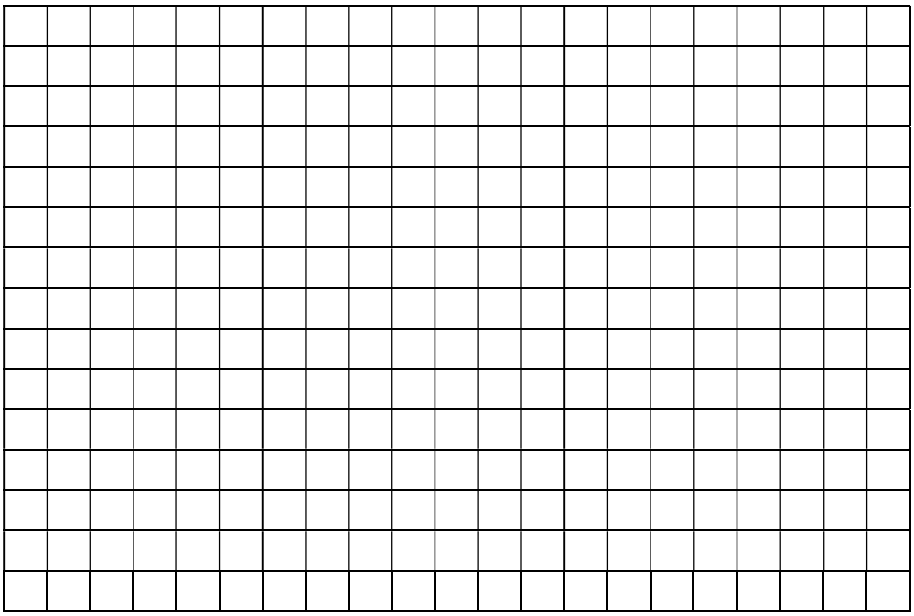
1. Graph the data using a bar graph. Put the trial number on the *x*-axis and the frequency on the *y*-axis.



2. What does this experiment tell you about the number of boxes you would have to eat to get all the prizes?

3. On average, how many boxes of cereal must you eat to get all six prizes?

4. How do your results compare with the rest of the class?