# What's Going On?

**Checking In**

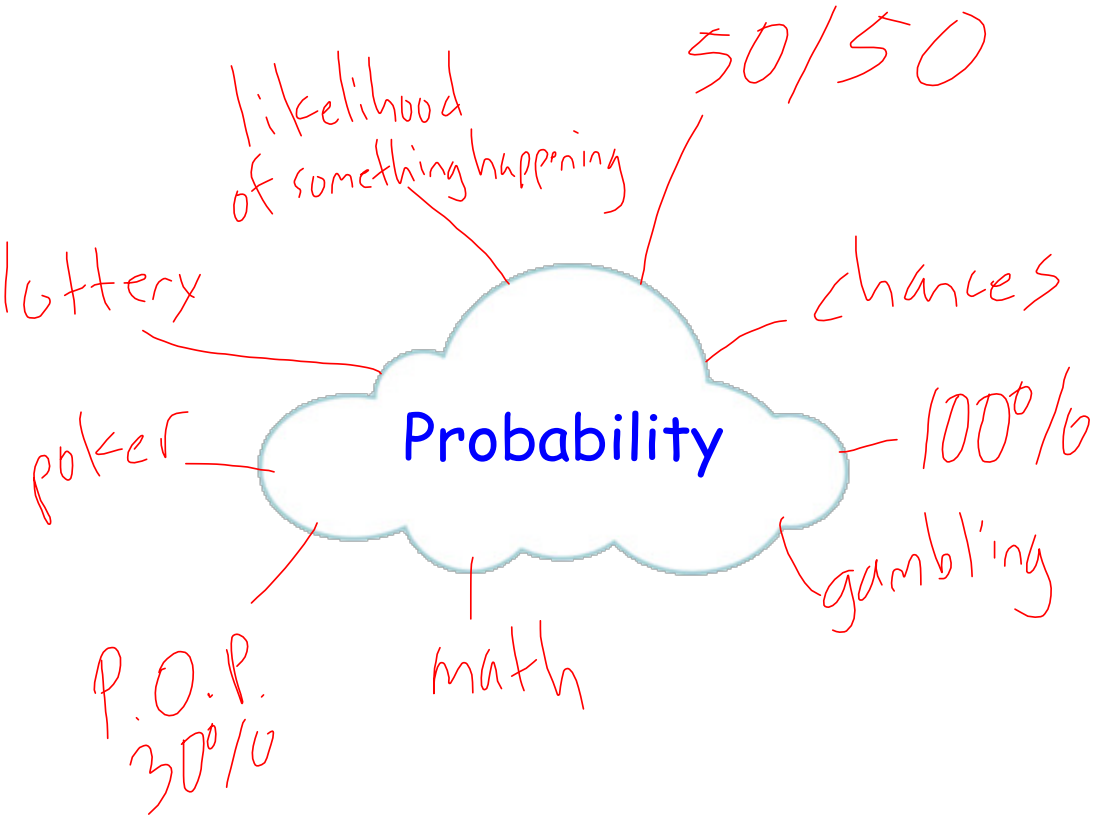
**Minds on** What is Probability?

**Action!** How do we represent probability?

**Consolidation** Coins and Dice

**Learning Goal - I will be able to express experimental probability in three different ways!**

## Minds on


Probability
likelihood of something happening
50/50
lottery
chances
poker
100%
gambling
P.O.P. 30%
math

## Action!

# How do we represent probability?

## Three ways

### 1. Fractional

$$\frac{\text{probability of something happening}}{\text{number of possible outcomes}}$$

* fraction

flipping a head $= \frac{1}{2}$ "over" "divided by"

## Action!

# How do we represent probability?

## Three ways

### 2. Decimal

Take the fraction and divide the numbers.

$1 \div 2 = 0.5$

Probability (head) = 0.5

P(head) = 0.5

## Action!

# How do we represent probability?

## Three ways

### 3. Percent

Take the decimal and multiply by 100.

$0.5 \times 100 = 50\%$

$P(\text{head}) = 50\%$

## Action!

How do we represent probability?

Who's up?

$$P(\text{basket}) = \frac{2}{5}$$

$$= 0.4$$

$$= 40\%$$

## Action!

How do we represent probability?

## How Did They Do?

| Fractional | Decimal | Percentage |
|---|---|---|
| $\frac{2}{5}$ | 0.4 | 40% |
| $\frac{1}{5}$ | 0.2 | 20% |

## Consolidation

### Frequency Distribution Tables

A frequency distribution table is used to record outcomes in an experiment.

Flip a coin 10 times and record the results in your table.

Frequency Distribution Table

| Result | Frequency |
|---|---|
| Heads | 4 |
| Tails | 6 |

## Consolidation

### Probability Calculations

Determine the experimental probabilities of flipping a head and flipping a tail below.

**Fractional**

P(heads) = $\frac{4}{10} = \frac{2}{5}$

P(tails) = $\frac{6}{10} = \frac{3}{5}$

**Decimal**

P(heads) = 0.4

P(tails) = 0.6

**Percent**

P(heads) = 40%

P(tails) = 60%

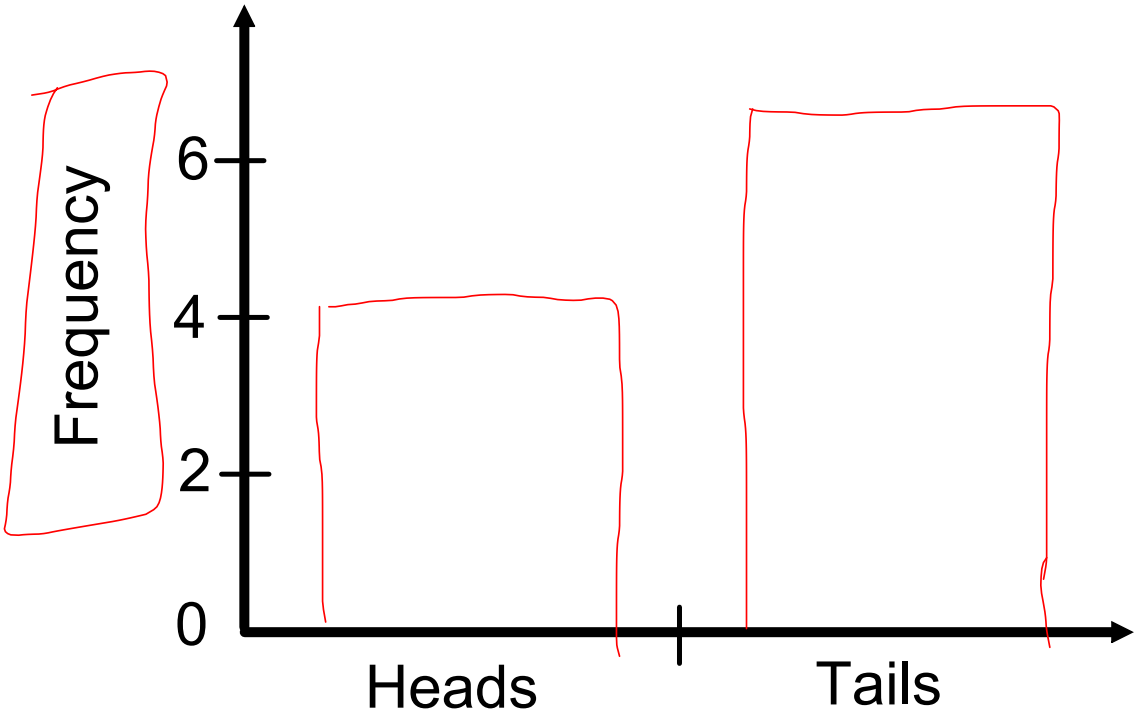
## Consolidation

# Histogram

A histogram is used to present the outcome of a probability experiment. A histogram is like a bar graph, but the bars **don't touch**.

Create a histogram to present the outcome of your coin flipping experiment.

Result of Coin Flip vs. Frequency




Outcome of Flip

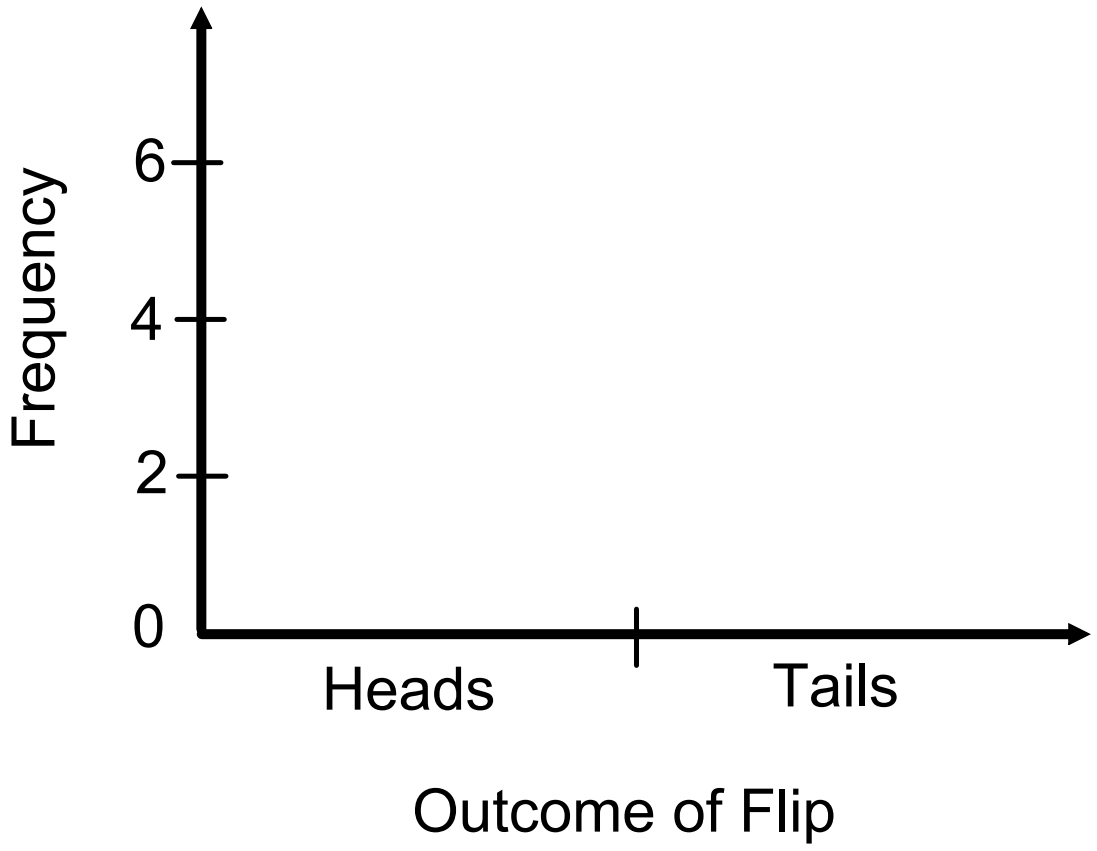
## Consolidation

# Histogram

A histogram is used to present the outcome of a probability experiment. A histogram is like a bar graph, but the bars **don't touch**.

Create a histogram to present the outcome of your coin flipping experiment.

Result of Coin Flip vs. Frequency



## Consolidation

Think About It!

Are the results of your experiment what you would expect? Explain why or why not.

## Consolidation

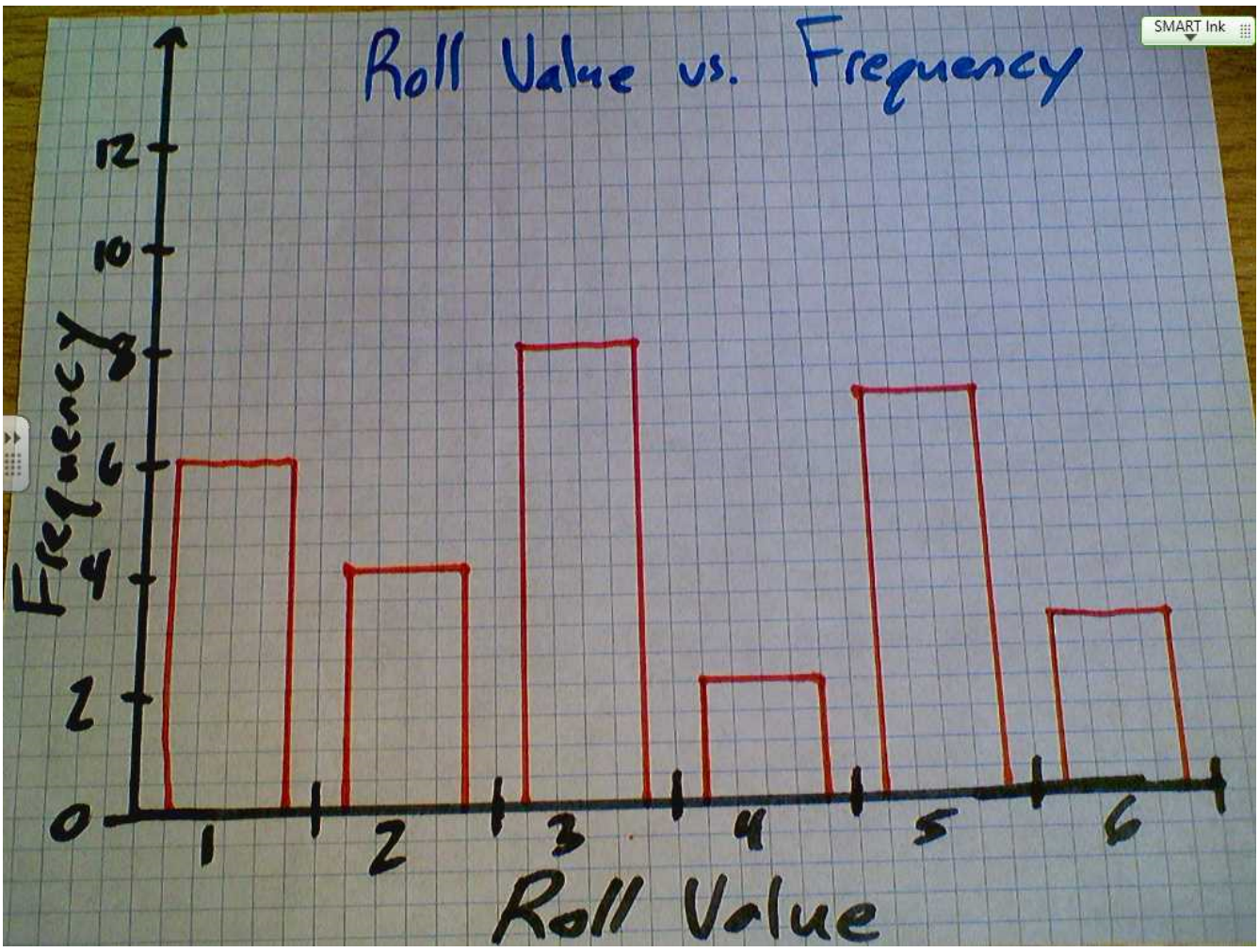
# Experiment!

Each person will get a dice and a sheet to record their **data and a graph**.

Follow the instructions on the sheet.

When you are done, use a piece of graph paper to recreate your probability histogram.

*Your bars should not be touching!


Roll Value vs. Frequency
SMART Ink
Frequency
12
10
8
6
4
2
0
1
2
3
4
5
6
Roll Value

## Consolidation