

Coin Toss Probability Lesson Plan

Title: Coin Toss Probability		Grade Range: 3-5
Integrated Curriculum Area: Math	Concepts and Competencies: Probability, Gathering Data, Data Tables	Tool: Spreadsheet Software
Summary: Students flip coins and use spreadsheets to record how many times they land on heads or tails.		

Warm-up

- Make sure students have completed the EasyTech lesson **Spreadsheet Basics: Titles, Selecting, and Navigation** and its prerequisites.
- Teacher reviews the probability concept of predicting possible outcomes based on a randomly conducted experiment.

Activity

Students will compare data using a spreadsheet:

- Students each flip a coin 10 times and record the results.
- Students each flip a coin 50 additional times and record the results.
- Students each flip a coin 100 additional times and record the results.
- Students input their data into spreadsheets and then create pie charts comparing the occurrences of heads and tails with the coin is flipped 10, 50, and 100 times.

Wrap-up

- Students save, print, compare, and display their completed graphs.
- Teacher discusses with the class how the probability gets closer to 50% that a coin will land on either heads or tails as the amount of times the coin is tossed increases. This can be conveyed by explaining that since a coin only has two sides, each coin flip has an equal (50%) chance of landing on either heads or tails. If the coin flip is repeated many times, the distribution of outcomes forms a predictable pattern.

Extension

- Students each get a bag of marbles or multi-colored candy. They estimate how many of each candy or marble color is in the bag. Then the students record the data in a spreadsheet, compare their estimates with the true amount of each candy or marble in the bag, and create comparative pie charts.

Name _____

Coin Toss Probability Activity Page

1. Flip a coin 10 times, and record how many times it lands on heads or tails in the data table below the model. Then flip it 50 more times, and record the same information again. Finally, flip the coin 100 times, and records that data in your table.

Here is a model of a data table:

Heads	Tails
7	3

10 Coin Flips

Heads	Tails

50 Coin Flips

Heads	Tails

100 Coin Flips

Heads	Tails

2. Now use your data tables to create a spreadsheet on the computer. What do you notice about the numbers of heads and tails as you increase the amount of times you flip the coin?

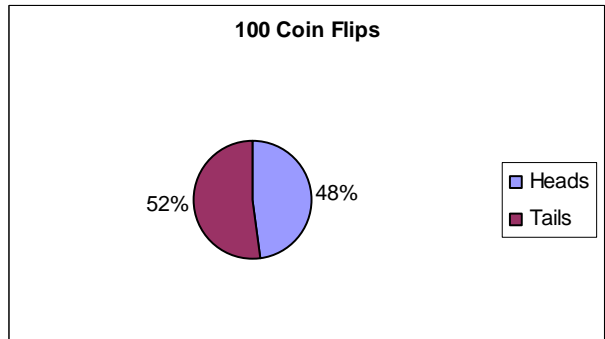
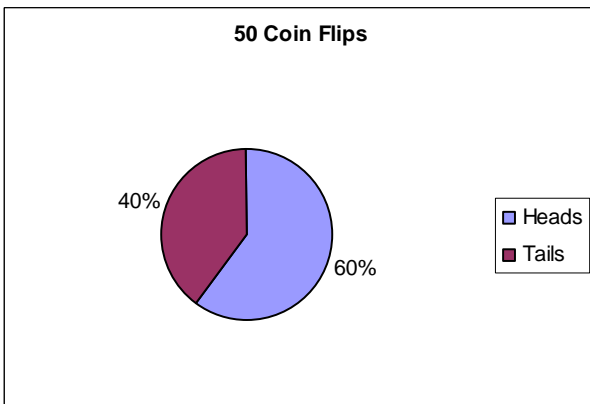
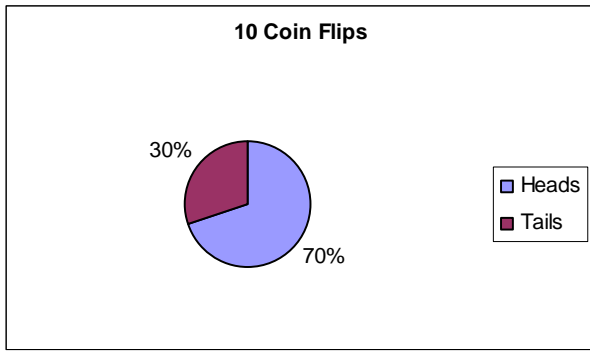
3. Using your spreadsheet data, create a pie chart for each of your three sets of coin tosses. Title each pie chart with the number of coin flips, and add the percentages as data labels for your charts.

Coin Toss Probability Model

Heads	Tails
7	3

Heads	Tails
30	20

Heads	Tails
48	52



Name: _____

Coin Toss Probability Rubric

Student Evaluation

Activity Page:

- _____ 10 coin tosses are completed
- _____ 50 coin tosses are completed
- _____ 100 coin tosses are completed
- _____ Written data tables are complete

Spreadsheet:

- _____ Three spreadsheets are completed
- _____ Spreadsheets include headings
- _____ Spreadsheets contain the same data as listed in the paper data tables
- _____ Three pie charts are completed
- _____ Pie charts include titles
- _____ Pie charts show percentages and correspond with each set of coin flips

Teacher Evaluation

Activity Page:

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