A flipped coin is equally likely to land heads or tails. There are 2 equally likely outcomes, and 1 outcome is tails. So, the probability of flipping tails on a fair coin is $\frac{1}{2}$. Similarly, the probability of flipping heads on a fair coin is $\frac{1}{2}$.

What happens when you flip two or more coins? Let's experiment.

Experiment 1: Two coins. Flip both coins at the same time. Place a tally mark in the appropriate column in a chart like the one below for each flip. Do this 60 times.

Two Heads	Two Tails	One Each

Consider: Did all three outcomes occur about the same number of times? If not, which outcome was most likely? Which outcome was least likely? Do you think that your results would be similar if you flipped both coins 60 more times?

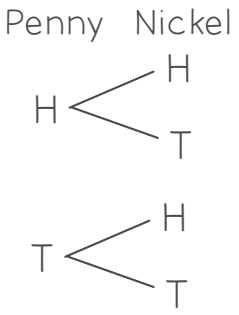
Experiment 2: Three coins. Flip three coins at the same time. Place a tally mark in the appropriate column in the chart below for each flip. Do this 60 times.

Three Heads	Two Heads & One Tails	Two Tails & One Heads	Three Tails

Consider: Did all four outcomes occur about the same number of times? If not, which outcome was most likely? Which outcome was least likely? Do you think that your results would be similar if you flipped all three coins 60 more times?

PRACTICE | Use the diagram below to help you answer the questions that follow.

Winnie flips a penny and Grogg flips a nickel. The tree diagram on the right displays all of the possible outcomes for Winnie's penny and Grogg's nickel. (H = Heads, T = Tails)



43. How many possible outcomes are possible for the flip of Winnie's penny and Grog's nickel? **43.** _____

44. What is the probability that Winnie's penny will land heads and Grogg's nickel will land tails? **44.** _____

45. What is the probability that both Grogg and Winnie will flip heads? **45.** _____

46. What is the probability that Grogg's coin will land with the same face up as Winnie's coin? **46.** _____

PRACTICE | Answer each question below.

47. Grogg flips two identical coins. What is the probability both coins will land tails? **47.** _____

48. Grogg flips his pair of identical coins a total of 1,000 times. About how many of those times do you expect ***both*** coins to land heads? Circle one answer.

0-50 51-100 101-200 201-300 301-500 501-1,000

PRACTICE

Answer the questions below. Express your answers as fractions in simplest form.

49. Winnie flips a penny, Grogg flips a nickel, and Alex flips a dime. Create a tree diagram to display all of the possible outcomes for Winnie's penny, Grogg's nickel, and Alex's dime.

50. How many possible outcomes are in your tree diagram above? **50.** _____

51. What is the probability that all three coins will land heads? **51.** _____

52. What is the probability that Winnie and Alex will flip heads, and Grogg will flip tails? **52.** _____

53. What is the probability that exactly one little monster will flip heads? **53.** _____

PRACTICE Answer the questions below. Express your answers as fractions in simplest form.

54. Four coins are flipped. What is the probability that all four coins will land heads? **54.** _____

55. Four coins are flipped. What is the probability that exactly one coin will land heads? **55.** _____

56. Lizzie flips the same coin four times in a row. What is the probability that the third and fourth flips will both land heads? **56.** _____

57. ★ Grogg and Lizzie each flip two coins. What is the probability that they each flip the same number of heads? **57.** _____

58. Eve flips three identical coins 1,000 times. About how many of those times do you expect ***exactly two*** coins to land heads?

0-50 51-100 101-200 201-300 301-500 501-1,000