

Pre 3.4

Coin Probability

Activity I

1) Flip a coin 10 times and record results in the table. What are the theoretical and experimental probability for this experiment.

Theoretical Probability: P (heads)_____ P (tails) _____

Experimental Probability: P (heads)_____ P (tails) _____

Heads	Tails

2) Flip the coin 100 times and record results in the table. What are the theoretical and experimental probability for this experiment.

Theoretical Probability: P (heads)_____ P (tails) _____

Experimental Probability: P (heads)_____ P (tails) _____

Heads	Tails

3) Compare experiments 1 and 2. What are your observations? Which results are more reliable and why?

4) Toss a bottle cap or jar lid 100 times and record the number of times it lands “up” and the number of times it lands “down”. What is the theoretical and experimental probability for each?

Theoretical Probability: P (heads)_____ P (tails) _____

Experimental Probability: P (heads)_____ P (tails) _____

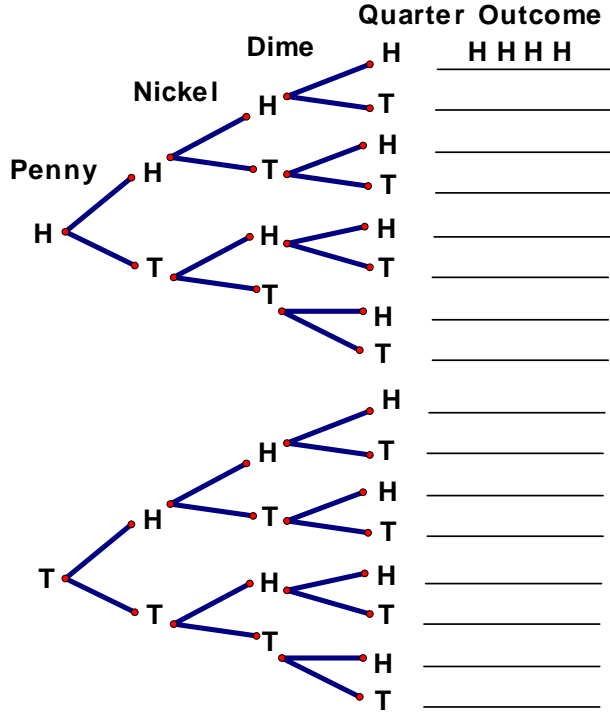
Heads	Tails

5) Are “landing up” and landing down” are equally likely? Explain your answer.

6) Based on your experiment, how many times would you expect the cap to land “up” in 1000 tosses? _____ “Down”? _____ Explain your answers.

Activity II A Four Coin Probability Tree

1) A penny, nickel, dime and quarter are tossed. The tree diagram below lists the outcomes for this experiment. Complete the outcomes column for the tree diagram.



2) Find the probability for each of the following. Refer to the tree diagram above.

HHHH _____ THTH _____ not TTTT _____

Exactly three heads _____ Exactly two tails _____

At least one head _____ Less than two tails _____

3) A penny, nickel, dime and quarter are tossed 240 times. How many times would you expect each of the following?

HHHT _____ not THTH _____ HHHH or TTTT _____

Exactly one head _____ Less than two tails _____

4) Toss a penny, nickel, dime and quarter. Compare the outcome with the tree outcomes above by putting a tally mark beside the matching outcome. Repeat for a total of 16 tosses.

5) Write a comparison of the theoretical and experimental probabilities in this experiment.