


Concept: What's the Chance? Name: _____

Note: You will need one coin for this topic


COMPUTER COMPONENT

Instructions: Select the computer program *Understanding Probability* (Neufeld)
 Follow the instructions to the Main Menu.
 Select *What's the Chance?* from the Main Menu.



Work through all sections of the following topics **in order**:

- *Probability ... What is it?*
- *Probability Examples*
- *The Probability Scale*
- *Experimental Probability*
- *Practice Questions*



As you work through the computer exercises, make your own notes in the **SUMMARY** section of this page.

When you reach the end of the section *Practice Questions* on the computer, move on to the **WORKSHEET** portion of this handout.

SUMMARY

The **probability** of an event occurring = $\frac{\text{number of } \underline{\hspace{2cm}} \text{ outcomes}}{\text{total number of } \underline{\hspace{2cm}} \text{ outcomes}}$

> Probability is a fraction from ____ to ____.

impossible = _____

certain = _____

> The Theoretical Probability of an event taking place is ____ always the same as what happens in the _____.

> probability of something happening + probability of something **not** happening = _____

WORKSHEET

1. Fill in the chart below.

	List of all Possible Outcomes	Favorable Outcome	Number of Favorable Outcomes	Probability
Coin Toss _____	heads, tails	tails		
Roll 1 Die _____	1, 2, 3, 4, 5, 6	roll a 2		
Pick an Ace (from deck of 52) _____		pick an Ace		
Roll 1 Die		roll a 4 or 5		
Pick Ace of Hearts (from deck of 52)		Pick Ace of Hearts		
Toss 2 Coins (order doesn't matter)		1 head, 1 tail		

2. Calculate the **Theoretical Probability** of tossing a head in the experiment of tossing a coin 30 times.

(Recall: Theoretical Probability is the probability that you think the experiment will produce, before you have even started the experiment)

3. You will need to work with a partner for this question.
- (a) Toss a coin 30 times. Record each result in the tally chart below.
 - (b) Express the total number of heads as a probability.
This is the **Experimental Probability**.
 - (c) How do your results compare with your prediction in #2?
 - (d) How do your results compare with those of your classmates?

Heads	Tails

4. What is the probability of spinning the numbers 1 to 5 on Spinner A below?



Spinner A

Probability of spinning 1 to 5 = _____ or _____ out of _____

5. What is the probability of picking a purple marble out of a bag which contains 3 blue marbles, 8 purple marbles, 4 orange marbles, and 1 black marble?

Probability of picking purple = _____ or _____ out of _____

6. Consider all the possibilities a person has when getting dressed to go outside.
For a person who has many clothing choices, the combinations are numerous, so we'll keep it simple. "Basic Bill" has the following choices for outdoor apparel:

Footwear	Jacket	Hat
-boots -sneakers	-parka -raincoat -jean jacket	-baseball cap -bucket hat -toque

- (a) Create a tree diagram to show all the possible clothing combinations.
How many possible outcomes are there for Bill if he must wear one of each item?

(b) Are all the above clothing combinations equally likely? Explain.

(c) What is the probability that Bill wears his jean jacket, baseball cap and sneakers?

5. The following table gives the number of birthdays each month for a class of 48 students.

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
4	6	5	6	4	4	2	5	3	2	4	3

- (i) What is the probability that a randomly picked student...
- has a birthday in May?
 - has a birthday in July?
 - has a birthday in May, June or July?
 - has a birthday during the two summer months?
 - does not have a birthday during the two summer months?
- (ii) How are the answers to (d) and (e) above related?
6. If a quality control check found that in a sample of 200 batteries, 6 were defective, how many batteries would you expect to be defective in a shipment of 1500 batteries?
7. If Shelby usually sinks 8 out of every 10 baskets she tries, how many baskets would you expect her to get in a game where she tries to sink the ball 50 times?
8. The probability of Pedro getting a strike in 3 games of bowling is $\frac{2}{15}$.
What is the probability of Pedro **not** getting a strike in 3 games?