



# Warm Up

Date: \_\_\_\_\_



Ch. 7 Lesson 6

day 1

You have this from FRIDAY

1) What type of graph would you use for each of the following and why?

a)

Distance from Land (km)	Height of Waves (m)
5	32
10	20
15	10
20	5
25	1
30	1

Line graph

b/c

→ Show a change in Distance and height over time.

→ Can connect dots b/c you can have part of both distance and height.

b)

Month	Number of Helmets Sold
April	12
May	21
June	56
July	63
August	37
September	18

Bar graph

b/c it compare sales of helmets in each month.

OR  
line graph (not connected)  
→ b/c change in # helmets over months.

c)

Type of Dance	Number of boys	Number of girls
Break dancing	3	2
Hip hop	4	3
Texas line dancing	3	5
Ballet	1	3
Other	4	2

Double bar graph

b/c

we are comparing different types of dance for both boys and girls.

**Practice**

**Homework Solutions**

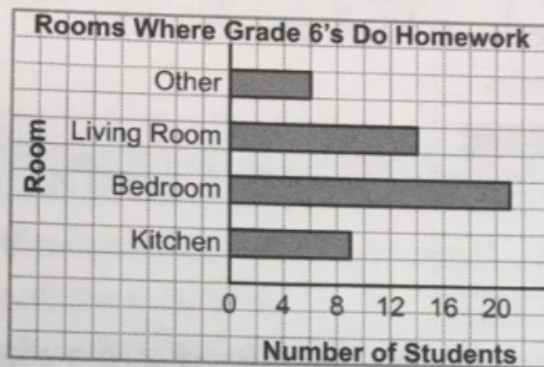
1. Jon surveyed the Grade 6 students in his school to answer this question:  
In which room of your home do you usually do your homework?

This table shows the data he collected.

Location	Number of Students
Kitchen	9
Bedroom	21
Living Room	14
Other	6

- a) Draw a graph to display these data.  
Explain your choice of graph.  
b) Where do most students do their homework?  
How does the graph show this?

1. a)



I chose a bar graph because the data are discrete and I can compare the lengths of the bars.

- b) The graph shows this because the bar for the bedroom is the longest.

2. Zena surveyed the Grade 6 students in her class to answer this question:

What is your favourite flavour of fruit juice?

This table shows the data she collected.

## Homework Solutions

Girls		Boys	
Flavour	Number of Students	Flavour	Number of Students
Apple	3	Apple	6
Orange	4	Orange	3
Cranberry	7	Cranberry	2
Grape	1	Grape	3
Other	0	Other	2

- a) Draw a graph to display these data.  
Explain your choice of graph.
- b) Which flavour of juice is most popular? Explain.

2. a) I chose a double-bar graph because there are two sets of data, and the data are discrete.
- b) Cranberry juice is most popular among the girls, and apple juice is most popular among the boys.



3. a) Choose an appropriate method to collect data to answer this question:  
What do the students in your class like most about summer?  
Explain your choice.
- b) Collect the data. Record the results.
- c) Draw a graph to display these data.  
Explain your choice of graph.
- d) Use the graph to answer the question in part a.  
Explain your answer.



## Homework Solutions

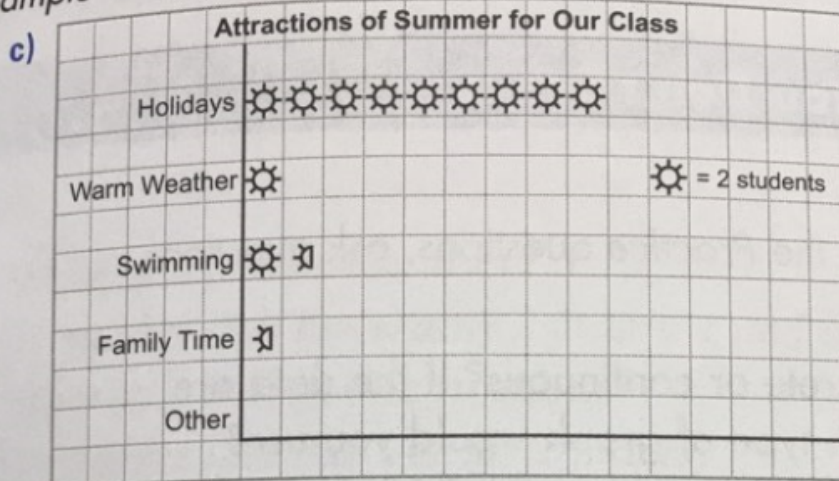


3. a) I will ask this question: What do you like most about summer: Warm weather \_\_, Holidays \_\_, Swimming \_\_, Family time \_\_, or Other? The survey will tell me about students' opinions, and there is a possible answer for everyone.

b)

Attraction	Tally
Holidays	
Warm weather	
Swimming	
Family time	
Other	

(Sample Solutions, continued)



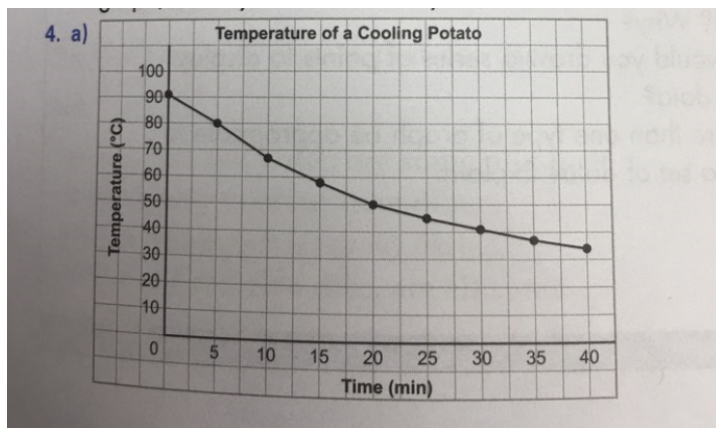
I chose a pictograph because the data are discrete and I could use the symbols to compare the numbers of students.

d) Students like holidays most about summer; on the graph, holidays has the most symbols.

## Homework Solutions

4. Jeremy conducted an experiment to answer this question  
How fast does the centre of a potato cool down after  
it is removed from boiling water?  
The table shows the data he collected.
- Draw a graph to display these data.  
Explain your choice of graph.
  - What conclusions can you make from the graph?

Time (min)	Temperature (°C)
0	91
5	80
10	67
15	58
20	50
25	45
30	41
35	37
40	34



I chose a line graph because both time and temperature are continuous. A line graph clearly shows how temperature changes over time.

- The graph goes down to the right. So, the temperature of the potato decreased over the 40 min. It cooled very quickly at first and then the cooling slowed down.



## Homework Solutions

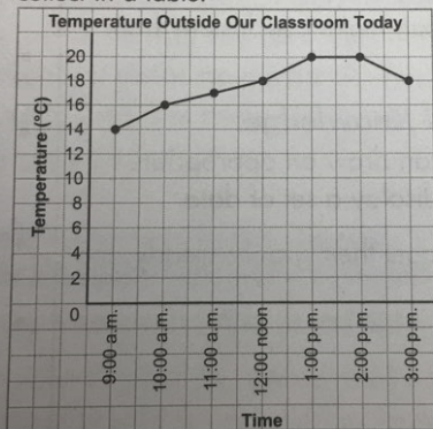
5. For each question below:

- Choose an appropriate method to collect data to answer the question. Explain your choice.
- Collect the data. Record the results.
- Draw a graph to display the data. Explain your choice of graph.
- Answer the question.

What other conclusions can you make from your graph?

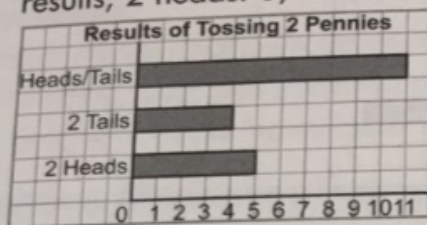
- What was the greatest temperature outside your classroom during a school day?
- When you toss 2 pennies, which outcome shows most often: 2 heads, 2 tails, or a head and a tail?

5. a) I would use a thermometer to measure the temperature once every hour. Students should record the data they collect in a table.



I chose a line graph because time and temperature are continuous data and a line graph clearly shows how the temperature changes over time. The greatest temperature was 20°C.

b) Experiment: I'll toss 2 pennies 20 times and record the results; 2 heads: 5; 2 tails: 4; head and tail: 11



I chose a bar graph because the data are discrete and I can compare the lengths of the bars. The outcome "a head and a tail" occurred most often. It occurred about twice as often as each of the other outcomes.

## Homework Solutions

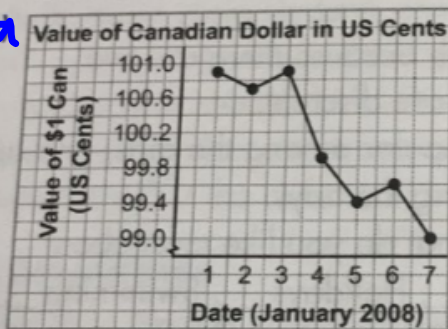
6. Demetra used *The Globe and Mail* Web site to collect data to answer this question: In the first week of January 2008, when would I have had the most American money for a Canadian dollar?

This table shows the data collected.

- Draw a graph to display these data.  
Explain your choice of graph.
- Answer the question above.
- What has happened to the value of the Canadian dollar since January 2008?  
How could you find out?

Day	Value of \$1 Can in US cents
Jan. 1	100.9¢
Jan. 2	100.7¢
Jan. 3	100.9¢
Jan. 4	99.9¢
Jan. 5	99.4¢
Jan. 6	99.6¢
Jan. 7	99.0¢

6a



I chose a line graph because the data changed over time and the dollar can be divided into partial amounts. There could be values between the ones shown.

- Answers will vary. Students could use the Internet or newspaper to find out.

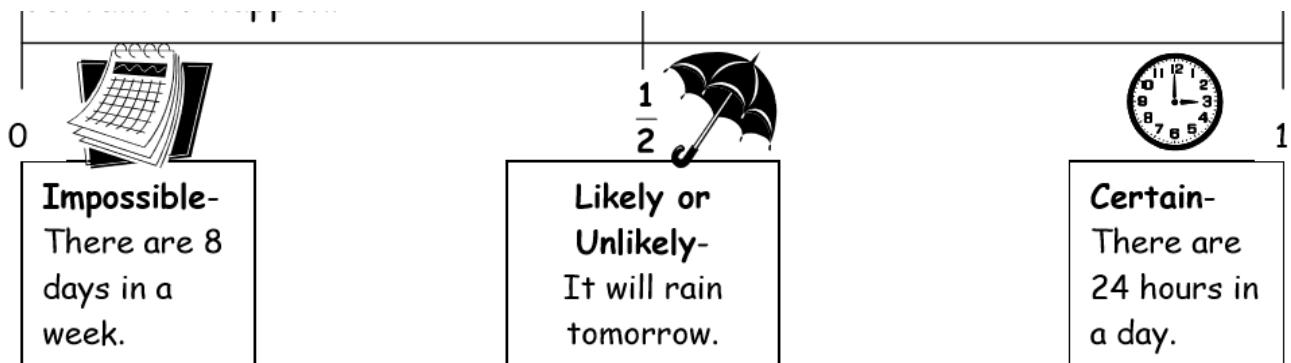
**REFLECT:** First, I decide if the data are continuous or discrete. If the data are discrete, I show them in a bar graph or pictograph, or as a series of points. The results of the penny toss in question 5 are an example of discrete data. If the data are continuous, I use a line graph. The cooling temperature of the potato in question 4 is an example of continuous data.

# Probability

**Probability** is the chance of something happening.

An **event** is something that may happen.

The probability of an event can be described using numbers, for example, the number 0 for something that is impossible and the number 1 for something that is certain to happen.





## Two types of Probability

**Theoretical Probability** - is what is expected to happen based on theory of math. Use a formula. (Today we are doing this)

Study

$$P(\text{event}) = \frac{\text{\# of favorable outcomes}}{\text{Total \# of possible outcomes}}$$

Ex)  $P(\text{head on coin}) = \frac{\text{\# of heads}}{\text{Total sides of coin}} = \frac{1}{2}$



**Experimental Probability** - is found by repeating an experiment and observing the outcomes. (Doing it out....not today)

$$P(\text{event}) = \frac{\text{number of times event occurs}}{\text{total number of trials}}$$

**Example:**

A coin is tossed 10 times:  
A head is recorded 7 times  
and a tail 3 times.

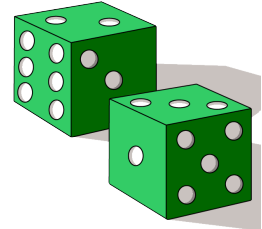
$$P(\text{head}) = \frac{7}{10}$$

$$P(\text{tail}) = \frac{3}{10}$$

**Connect**

Jamie and Alexis are playing *Predicting Products*. They take turns to roll 2 dice, each labelled 1 to 6. If the product of the 2 numbers rolled is odd, Jamie gets a point. If the product is even, Alexis gets a point. The first person to get 20 points wins. Who is more likely to win?

Jamie	Alexis
Odd Product	Even Product



Here is one way to help predict the winner:

Organize the possible outcomes in a table. Each number on a die has an equal chance of being rolled.

X	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

From the table:

- There are 36 possible outcomes.
- 21 outcomes are even products.
- 15 outcomes are odd products.

What is the probability of getting an even product? (Write the probability statement)

What is the probability of getting an odd product? (Write the probability statement)

Who is more likely to win and why?

Since

## Example of theoretical Probability

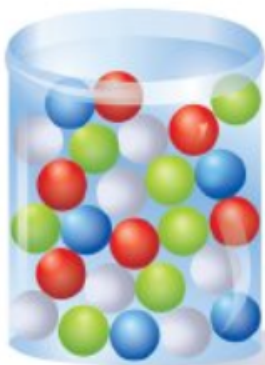
A fundraising group is conducting a raffle in which they will be giving away a bicycle. There are 80 entries. Janie purchases 4 tickets. What is the probability that she will win the bicycle?

$$\begin{aligned} P(\text{win Raffle}) &= \frac{\# \text{ ticket bought}}{\text{total entries}} \\ &= \frac{4}{80} \quad \text{Reduce} \\ &= \frac{2}{40} \\ &= \frac{1}{20} \end{aligned}$$



The probability of Janie winning the bike is  $\frac{1}{20}$ .

- A jar contains 5 blue marbles, 6 red marbles, 7 green marbles, and 7 white marbles. Without looking, a student picks a marble from the jar.



When we pick a marble without looking, we say the marble is picked at random.



$$\begin{aligned} \text{Total Marbles} &= 7 + 6 + 5 + 7 \\ &= 25 \end{aligned}$$

- What are the possible outcomes?  
The outcomes are: a blue marble, a red marble, a green marble, and a white marble.
- What is the theoretical probability of picking a green marble?  
Each marble has an equal chance of being picked.

$$P(\text{green marble}) = \frac{\text{\# of green marbles}}{\text{total marbles}} = \frac{7}{25}$$

The probability of choosing a green marble is  $\frac{7}{25}$ .

# Class/Homework

Page 273-275 #1, 2 3

Not just the answer. Write the probability statement (Reduce Fractions)

$$P(\text{Favorable}) = \frac{\text{\#favorable}}{\text{total}}$$



**Practice**



1. A paper bag contains 2 green tiles, 4 yellow tiles, and 1 blue tile. Liz draws a tile without looking.
  - a) List the possible outcomes.
  - b) What is the theoretical probability that the tile is:
    - i) green?
    - ii) yellow?
    - iii) blue?
  
2. There are 13 girls and 17 boys in a Grade 6 class. The teacher puts each student's name into a hat, then draws one name. The student whose name is drawn will be the first to present her or his speech. What is the theoretical probability that a girl will present first?
  
  
  
  
  
  
  
  
  
  
3. Jade spins the pointer on this spinner.
  - a) List the possible outcomes.
  - b) What is the theoretical probability of each outcome?
    - i) The pointer lands on black.
    - ii) The pointer lands on red.
    - iii) The pointer lands on yellow or white.
    - iv) The pointer does not land on yellow.
  
  
  
  
  
  
  
  
  
  
4. Shen rolls a die labelled 1 to 6.
  - a) List the possible outcomes.
  - b) What is the probability of rolling a 1?  
An even number? A number greater than 4?

5. A jar contains 9 black, 22 red, 26 orange, and 13 green marbles.  
A marble is picked at random.
- List the possible outcomes.
  - What is the probability of each outcome?
    - A black marble is picked.
    - A green marble is picked.
    - A red or an orange marble is picked.

6. A letter is chosen at random from each word listed below.  
In each case, what is the probability that the letter chosen is a vowel?
- Yukon
  - Saskatchewan
  - Nunavut
  - Manitoba

7. An object with 10 congruent faces is a regular decahedron.  
Shannon and Joshua roll a decahedron labelled 1 to 10.
- List the possible outcomes.
  - What is the probability Shannon rolls an odd number?
  - Joshua says there is a probability of  $\frac{1}{5}$  for rolling a number with a certain digit. What is the digit?

8. At a carnival, you can choose one of these wheels to spin.  
To win a prize on the first wheel, the pointer must land on a star.  
To win a prize on the second wheel, the pointer must land on a happy face.  
Which wheel would you choose to spin?  
Use words and numbers to explain your answer.



9. This table shows the number of birthdays each month for a Grade 6 class.  
A student is picked at random.  
What is the probability of each event?
- The student has a birthday in March.
  - The student has a birthday in October.
  - The student has a birthday in June, July, or August.
  - The student does not have a birthday in December.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Number of Students	2	4	3	1	5	3	2	3	3	1	1	2



10. A bag contains 6 cubes.  
The cubes are coloured blue and yellow.  
Draw and colour the cubes in the bag for each probability:
- The probability of picking a yellow cube is  $\frac{1}{6}$ .
  - The probability of picking a blue cube is  $\frac{3}{6}$ .