



# Warm Up

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



Ch. 7 Lesson 6

day 1

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 I can show a change of height over the distance

→ Bar graph b/c comparing height of waves compared to distance from land.

b)

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

→ Bar graph b/c comparing the # of helmets sold in different 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 boys to girls for dance type

**Practice**

**Homework Solutions**

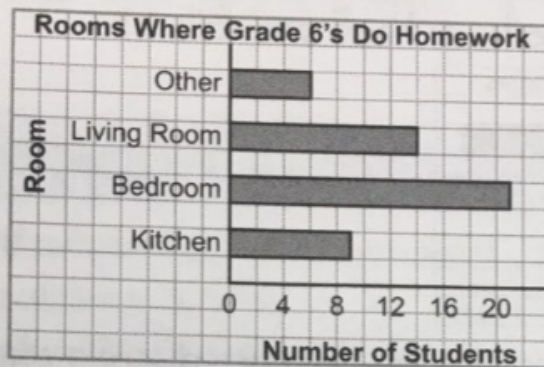
1. Jon surveyed the Grade 6 students in his school to answer this question:  
In which room of your home do you usually do your homework?

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

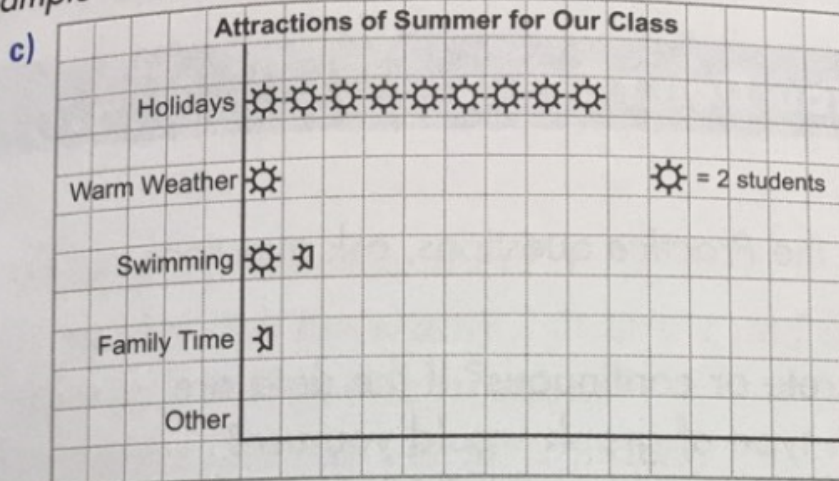


3. a) I will ask this question: What do you like most about summer: Warm weather \_\_, Holidays \_\_, Swimming \_\_, Family time \_\_, or Other? The survey will tell me about students' opinions, and there is a possible answer for everyone.

b)

Attraction	Tally
Holidays	
Warm weather	
Swimming	
Family time	
Other	

(Sample Solutions, continued)



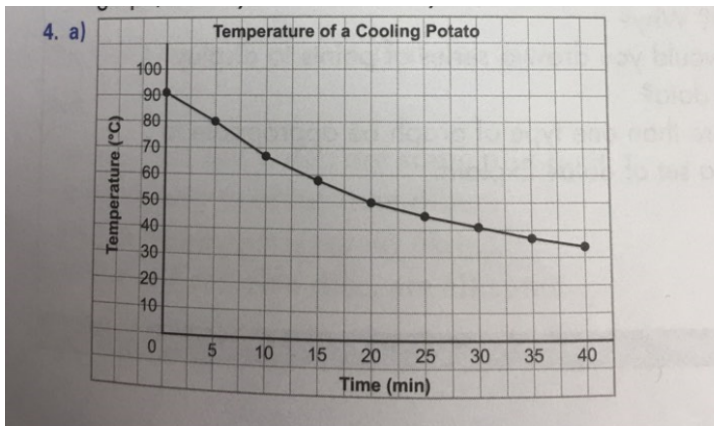
I chose a pictograph because the data are discrete and I could use the symbols to compare the numbers of students.

- 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.

- b) 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

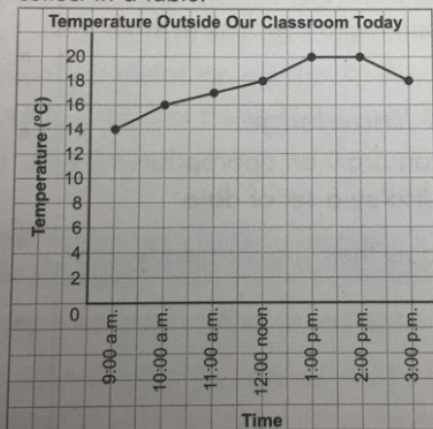
5. For each question below:

- 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?

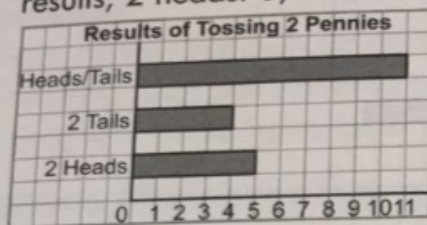
- What was the greatest temperature outside your classroom during a school day?
- When you toss 2 pennies, which outcome shows most often: 2 heads, 2 tails, or a head and a tail?

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

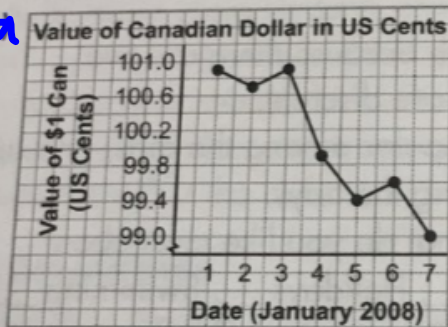
6. Demetra used *The Globe and Mail* Web site to collect data to answer this question: In the first week of January 2008, when would I have had the most American money for a Canadian dollar?

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.

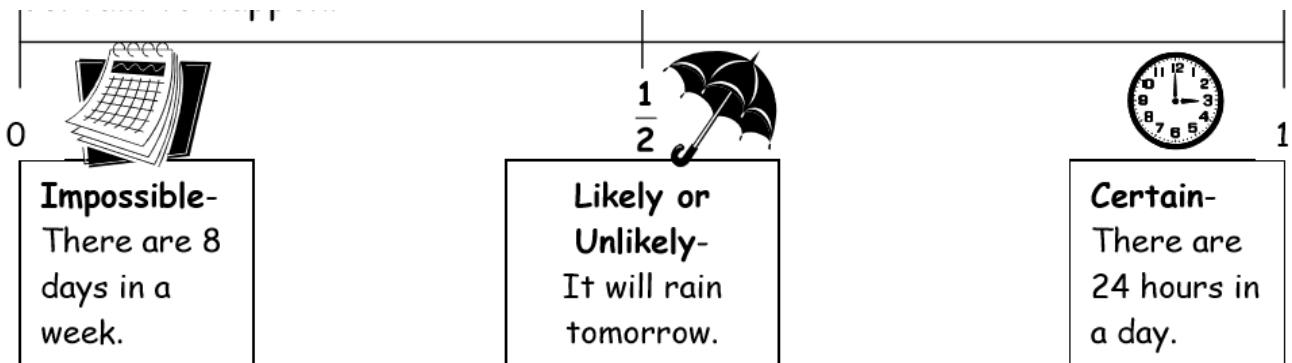
**REFLECT:** First, I decide if the data are continuous or discrete. If the data are discrete, I show them in a bar graph or pictograph, or as a series of points. The results of the penny toss in question 5 are an example of discrete data. If the data are continuous, I use a line graph. The cooling temperature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

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

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



**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.

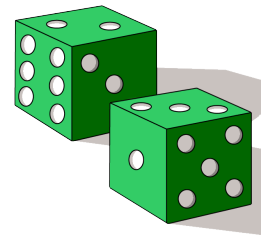
$$P(\text{head}) = \frac{7}{10}$$

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

**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



27 even #

9 odd #

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	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

From the table:

- There are 36 possible outcomes.
- 27 outcomes are even products.
- 9 outcomes are odd products.

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

$$P(\text{even product}) = \frac{\# \text{ even}}{\text{total outcomes}} = \frac{27 \div 9}{36 \div 9} = \frac{3}{4}$$

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

$$P(\text{odd product}) = \frac{\# \text{ odd}}{\text{Total outcomes}} = \frac{9}{36} \div 9 = \frac{1}{4}$$

Who is more likely to win and why?

Since the probability of getting an even # is 27/36 and this is greater than the probability of getting an odd, which is 9/36 = 1/4 then Alexis is more likely to win.

$$\frac{27}{36} > \frac{9}{36}$$

Alexis                  Jamie

↓

Better  
Chance  
to win

## 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?

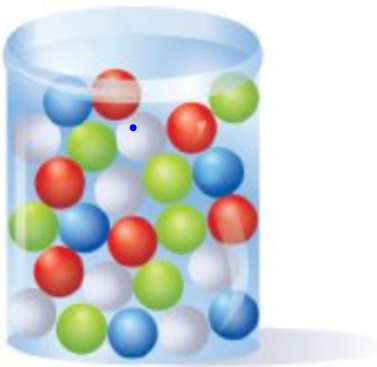


$$P(\text{win}) = \frac{\# \text{ ticket Janie has}}{\text{Total sold}}$$

$$= \frac{4}{80} \quad \begin{array}{l} \div 4 \\ \div 4 \end{array}$$

$$= \frac{1}{20} \quad \text{Always reduce fraction}$$

- 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.



$$5 + 6 + 7 + 7$$

25  
marbles  
total

- What are the possible outcomes?  
The outcomes are: Blue, Red, green, White
- What is the theoretical probability of picking a green marble?  
Each marble has an equal chance of being picked.

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

# Class/Homework

Page 273-275 #1, 2 3

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

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

Test Tuesday  
Mar. 19, 2019

**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  $\frac{3}{6}$ .