

Practice

Homework Solutions

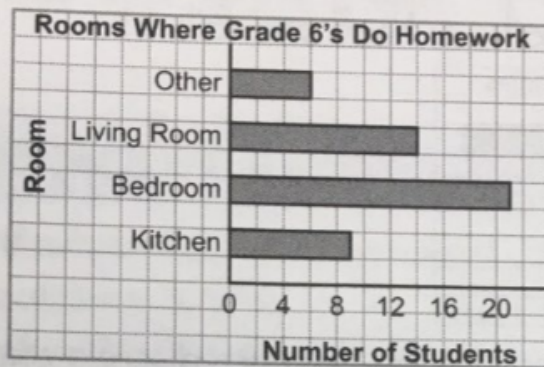
1. Jon surveyed the Grade 6 students in his school to answer this question:
In which room of your home do you usually do your homework?

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

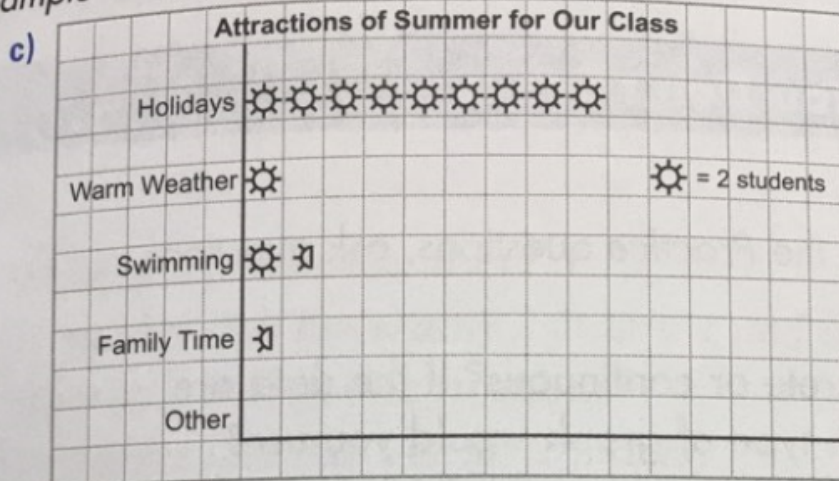


3. a) I will ask this question: What do you like most about summer: Warm weather __, Holidays __, Swimming __, Family time __, or Other? The survey will tell me about students' opinions, and there is a possible answer for everyone.

b)

Attraction	Tally
Holidays	
Warm weather	
Swimming	
Family time	
Other	

(Sample Solutions, continued)



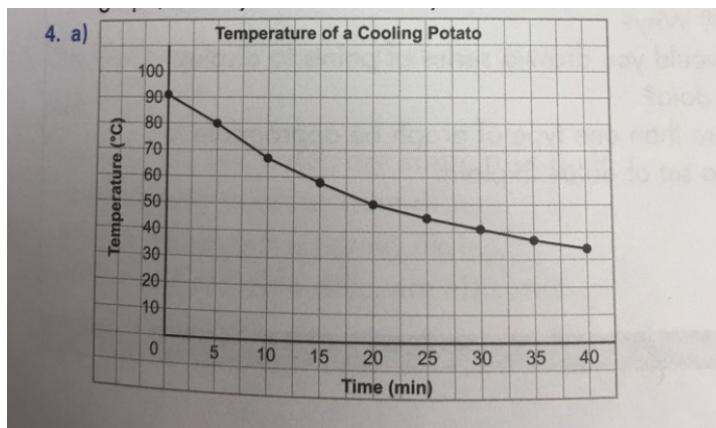
I chose a pictograph because the data are discrete and I could use the symbols to compare the numbers of students.

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

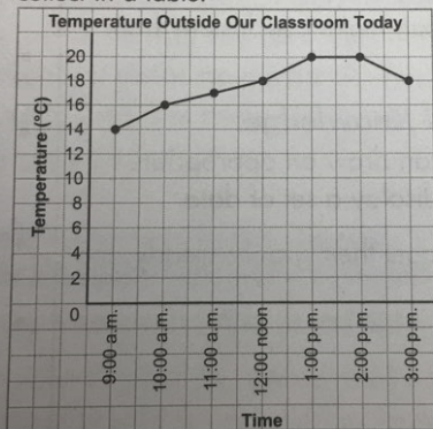
5. For each question below:

- 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?

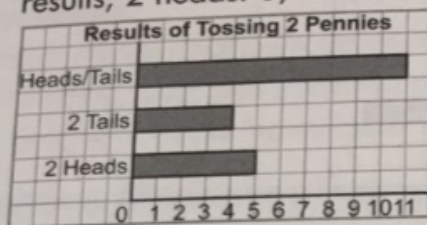
- What was the greatest temperature outside your classroom during a school day?
- When you toss 2 pennies, which outcome shows most often: 2 heads, 2 tails, or a head and a tail?

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

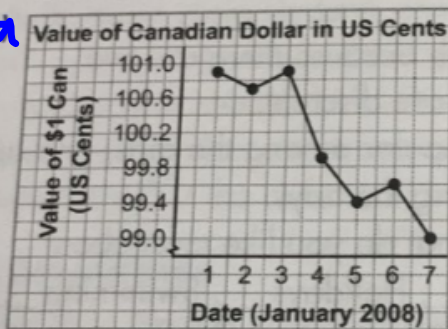
6. Demetra used *The Globe and Mail* Web site to collect data to answer this question: In the first week of January 2008, when would I have had the most American money for a Canadian dollar?

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.

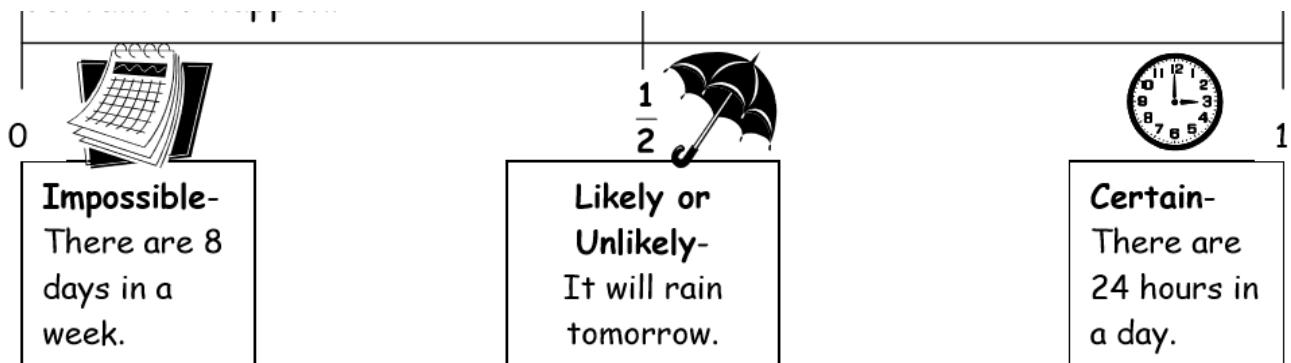
REFLECT: First, I decide if the data are continuous or discrete. If the data are discrete, I show them in a bar graph or pictograph, or as a series of points. The results of the penny toss in question 5 are an example of discrete data. If the data are continuous, I use a line graph. The cooling temperature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



Study

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)

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

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



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.

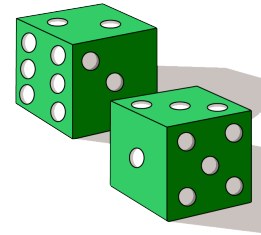
$$P(\text{head}) = \frac{7}{10}$$

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

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



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

I circled the even products

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)

$$P(\text{even products}) = \frac{\# \text{ even products}}{\text{Total}} = \frac{27}{36}$$

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

$$P(\text{odd product}) = \frac{\# \text{ odd product}}{\text{total}} = \frac{9}{36}$$

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 then Alexis is more likely to win.