

UNIT 4

PROPORTIONAL REASONING: RATIO, RATE AND PROPORTION

Student Booklet – Table of Contents

Lesson #	Date	Sections or Topic	Homework
1		4.1.2 Who Eats the Most 4.1.3 What's in the Bag? 4.1.4 A Global Village 4.1.5 Fish Tales	
2		4.2.1 Note-Making: Proportional Reasoning 4.2.2 Anticipation Guide 4.2.3 Growing Dilemma Investigation 4.2.4 Practice	
3		4.3.1 Television Viewing 4.3.2 Television Dimensions 4.3.3 Practice	
4		4.4.1 Estimating Crowd Size 4.4.2 Techniques for Estimating Crowd Size 4.4.3 I'm all Blown Up	
5		4.5.1 I'd Rather Be Scaling 4.5.2 Scaling Problems	
6		4.6.1 Recalling Rates 4.6.2 The Going Rate 4.6.3 Practice	
7		4.7.1 I Remember This 4.7.2 Elastic Meter and Percent 4.7.3 Types of Percent Problems 4.7.4 Practice 4.7.5 Journal Activity	
8		4.8.2 Review Relay 4.8.3 Practice	
9		Assessment	
10 - 11		4.W Definition Page 4.S Unit Summary Page 4.R Reflecting on My Learning 4.RLS Reflecting on Learning Skills	

4.1.2: Who Eats More? Worksheet

Task 1

Small Group

Using the cards in Envelope 1:

- a) Arrange them in order of which animal you believe eats more, from most to least.

Most

Least

- b) Explain the reason why you placed the animals in this order.

Task 2

Small Group

Using the cards in Envelope 2:

- a) Arrange them in order of which animal you believe eats more, from most to least.

Most

Least

- b) Explain your reasons for this arrangement if it was different from the arrangement in [Task 1](#).

4.1.2: Who Eats More? Worksheet (continued)

Task 3

Small Group

Using the cards in Envelope 3:

- a) Arrange them in order of which animal you believe eats more, from most to least.

Most

Least

- b) Explain your reasons for this arrangement if it was different from the arrangement in [Task 2](#).

Task 4

Whole class discussion.

- a) Explain the reasoning used in [Task 3](#).

Using the cards from Envelope 3:

- b) Arrange them in the order the class has decided shows which animal eats more.

Most

Least

- c) Explain your reasons for this arrangement. How close was your group to the class order?

4.1.3: What's in the Bag? Worksheet

At your station you have a bag with two different-coloured tiles.

1. Without looking, pull a tile out of the bag. Make a tally mark in the appropriate column in the table below.
2. Put the tile back into the bag and shake it up.
3. Repeat steps 1 and 2 a total of 20 times. 20 times is considered one (1) trial.
4. Complete a total of 4 trials with 20 pulls.

	Colour 1:	Colour 2:
Trial 1		
Trial 2		
Trial 3		
Trial 4		
Total		

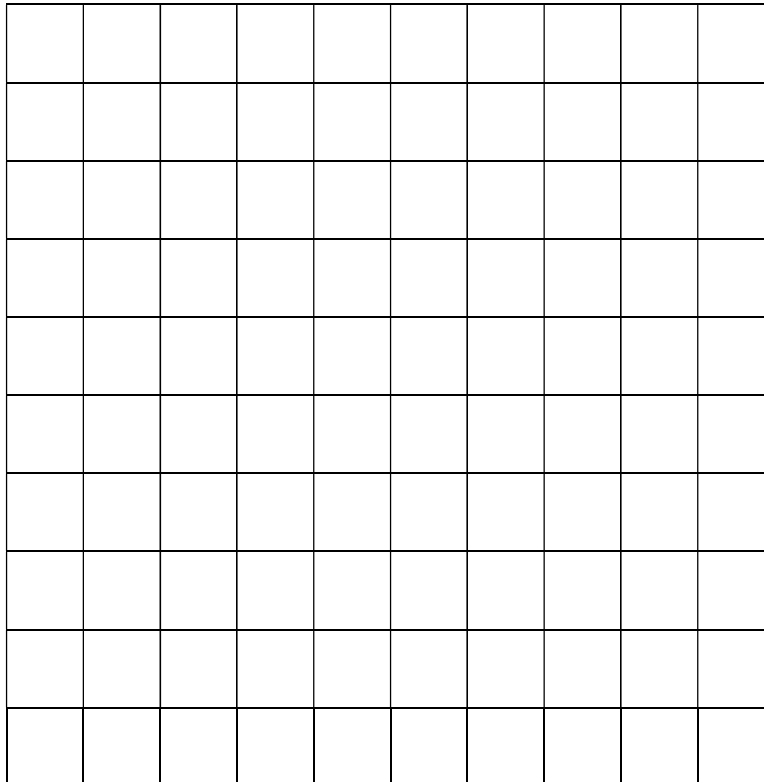
4. What appears to be the ratio of colour 1 to colour 2 in your bag?
5. Answer the following questions using the information you have collected. Justify your answers.
 - a) If you had 30 of colour 1 in your bag, how many of colour 2 would you expect to have?
 - b) If you had 20 of colour 2 in your bag, how many of colour 1 would you expect to have?
 - c) If you had a total of 80 tiles in your bag, how many of each colour would you expect to have?
 - d) If you had 40 of colour 1 in your bag, how many tiles in total would you expect to have?

4.1.4: A Global Village

In a global village of 100 people there are:

- 61 people from Asia
- 13 people from Africa
- 12 people from Europe
- 8 people from South America including Central America, Mexico and the Caribbean
- 5 people from the United States and Canada
- 1 people from Oceania (Australia, New Zealand, and Pacific Islands)

On the grid represent the global village of 100 by colouring in the squares. Create a legend by marking the colour beside each statistic.



Record the following ratios:

- a) people from Europe : people from Asia _____
- b) people from South America : people from Oceania _____
- c) people from Africa : people from Oceania _____

There are approximately 1200 students in a school. If the student body resembled the global village described, how many people would be from each of the 6 regions?
Show your work and describe the strategy that you used.

4.1.4: A Global Village (continued)

2006 Winter Olympics:

During the Winter Games, the media tell the world about Olympic events and topical issues. In Torino, almost 10 000 men and women provided images, words, and photos of the Olympic games. If the media resembled the global village described, how many would be from each of the 6 regions? Show your work and describe the strategy that you used.

Do you think that these numbers represent the actual numbers of the media from each region? Explain your thinking.

World Cup of Soccer:

The World Cup of Soccer was played in Germany during the summer of 2006. The distribution of the 32 teams in the tournament representing the same regions of the world is listed below:

Asia	4 teams	Africa	5 teams
Europe	14 teams	South America	7 teams
United States and Canada	1 team	Oceania	1 team

How well does the distribution of the teams represent the populations for the 6 regions? Explain your thinking.

4.1.5: Fish Tales

Have you ever wondered how scientists estimate how many fish there are in a lake? Try this “capture-recapture” activity.

The bag is your “lake”. It has an unknown quantity of fish (colour tiles). You can not see how many fish are in the lake.

- Take a handful of the fish.
- Count the number of fish in your hand.
- “Tag” the fish from your handful by placing a sticker on each of the colour tiles and place them all back into the lake. (Tagging is only done once! Put the stickers away.)
- Mix the tiles up to redistribute the tagged fish in your lake.
- One at a time, each group member:
 - Takes one handful of fish
 - Counts the total number of captured fish
 - Counts the number of tagged fish
 - Puts all fish back in the lake for the next person to “capture”
- Gather everyone’s data and use the information to estimate the number of fish in the lake.

What is the ratio of tagged fish to untagged fish?

What is the ratio of the total number tagged and the total population in the lake?

Compare your answer to the actual value (empty your lake and count the fish). How close was your estimate?

Where else could this method for approximation of total population be used?

(“Untag” all of your fish and put them back in the lake for the next group.)

4.2.1: Note-Making: Proportional Reasoning

Definition	Examples
Ratio -	
Equivalent ratio/Proportion -	
Ratio in lowest terms -	
Rate -	
Unit rate –	

4.2.2: Anticipation Guide

Instructions

- Check **Agree** or **Disagree**, in ink, in the **Before** category beside each statement before you start the Growing Dilemma task.
- Compare your choice with your partner.
- Revisit your choices at the end of the investigation.

Before		Statement	After	
Agree	Disagree		Agree	Disagree
		1. If you double the length of a square, then the perimeter also doubles.		
		2. If you double the length of a square, then the area also doubles.		
		3. If you double the length of a square, then the length of the diagonal also doubles.		
		4. If you double the sides of a cube, then the volume also doubles.		

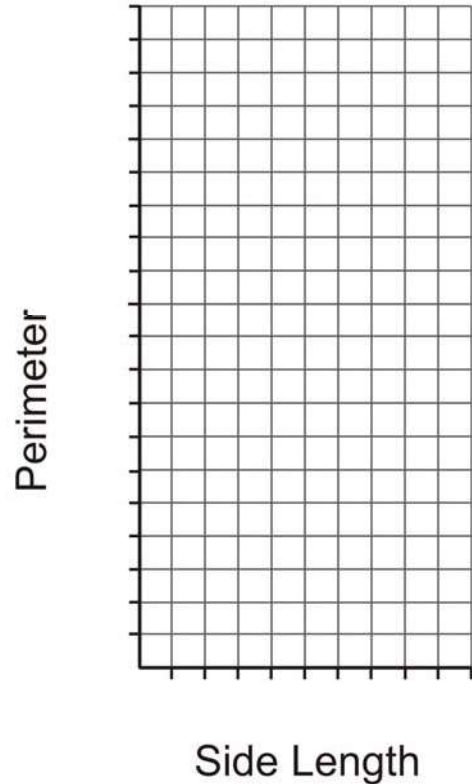
4.2.3: Growing Dilemma Investigation

Investigation 1: Perimeter Ratios

Use the colour tiles to create squares with the indicated side length.

- Determine the perimeter for each side length.
- Complete the chart.
- Graph **Perimeter** vs. **Side Length** on the grid provided.

Side Length (S)	Perimeter (P)	First Differences	Ratio (S:P)	Ratio in Lowest Terms
1				
2				
3				
4				
5				



- State the characteristics of this relationship:
 - first differences
 - ratios
 - graph

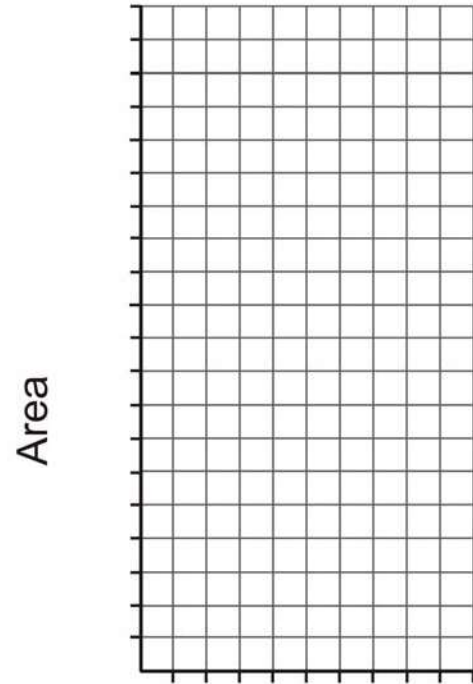
4.2.3: Growing Dilemma Investigation (continued)

Investigation 2: Area Ratios

Use the colour tiles to create squares with the indicated side length.

- Determine the area for each side length.
- Complete the chart.
- Graph **Area** vs. **Side Length** on the grid provided.

Side Length (S)	Area (A)	First Differences	Ratio (S:A)	Ratio in Lowest Terms
1				
2				
3				
4				
5				



- State 3 characteristics of this relationship:

- first differences
- ratios
- graph

4.2.3: Growing Dilemma Investigation (continued)

Investigation 3: Diagonal Length Ratios

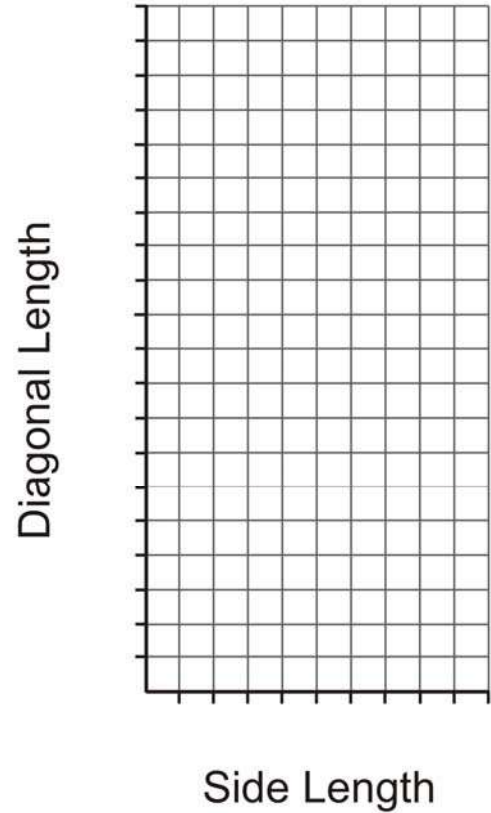
Use the colour tiles to create squares with the indicated side length.

- Determine the length of the diagonal for each side length. Use Pythagorean Theorem.

$$a^2 + b^2 = c^2$$

- Complete the chart.
- Graph **Diagonal Length** vs. **Side Length** on the grid provided.

Side Length (S)	Diagonal (D)	First Differences	Ratio (S:D)	Ratio in Lowest Terms
1				
2				
3				
4				
5				



- State 3 characteristics of this relationship:

- first differences
- ratios
- graph

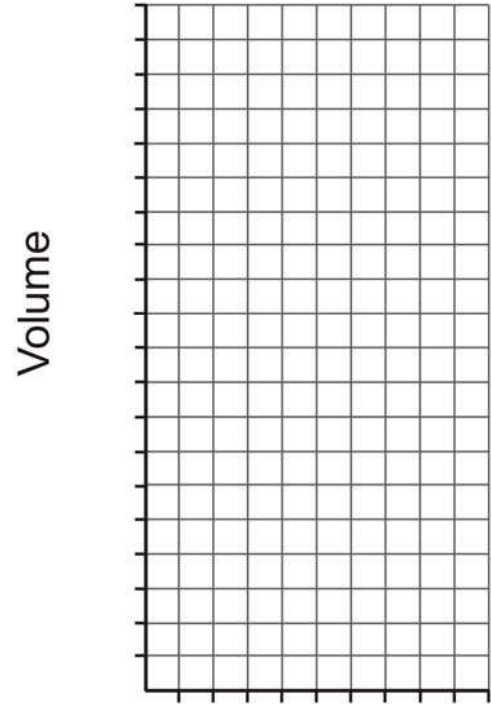
4.2.3: Growing Dilemma Investigation (continued)

Investigation 4: Volume Ratios

Use the linking cubes or tiles to create cubes with the indicated side length.

1. Determine the volume of the cube for each side length.
2. Complete the chart.
3. Graph **Volume** vs. **Side Length** on the grid provided.

Side Length (S)	Volume (V)	First Differences	Ratio (S:V)	Ratio in Lowest Terms
1				
2				
3				
4				
5				



4. State 3 characteristics of this relationship:

- a) first differences
- b) ratios
- c) graph

4.2.3: Growing Dilemma Investigation (continued)

Remember, a ***proportion*** is a statement of two equal ratios.

Conclusion

a) Which of the 4 relationships that you have investigated are proportional?

b) What else can you conclude about relationships that are proportional?

4.2.4: Practice

1. Reduce the following to lowest terms.

a) $4 : 20 =$ _____ b) $3 : 18 =$ _____

c) $33 : 11 =$ _____ d) $36 : 9 =$ _____

2. Using the scenarios below, check for proportionality and justify your response.

(a) You are paid an hourly wage. If you work 3 times the number of hours, does your pay triple?

(b) Student council raffle tickets cost \$0.50/each or 3 for \$1. If you buy twice as many tickets, does your cost double?

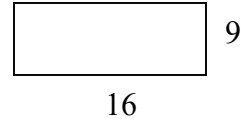
4.3.2: Television Dimensions

Basic Television Information

- Traditional televisions have a ratio of width to height of 4:3.



- High definition televisions (HDTV) have a ratio of width to height of 16:9.



- Television sizes are given as the length of the diagonal of the screen, i.e., a 27-inch television is 27 inches from one corner to the diagonally opposite corner.

Problem 1

Darren wants to buy a new television. He finds a traditional television at the store and measures the width of it to make sure it fits in his home. He measures the width to be 24 inches but he forgets to measure the height and the diagonal.

a) Draw a diagram.

b) What is the height of the television?

c) What is the size of the television? (the length of the diagonal)

4.3.2: Television Dimensions (continued)

Problem 2

Sasha is buying a new HDTV. She finds one and measures the width to be about 35 inches.

a) Draw a diagram.

b) What is the height of the television?

b) What is the size of the television?

c) What is the optimal viewing distance for Sasha's new HDTV?

4.3.3: Practice

1. For safety reasons, a wheelchair ramp must be 1 m high for every 12 metres in horizontal length. The sloping length of the ramp is not part of this ratio.

The ratio of **the height of the ramp** to **the horizontal length of the ramp** is **1:12**.

Draw a diagram.

(a) What is the horizontal length of a ramp that is 2 m tall?

(b) A ramp has a height of 2.6 m and a sloping length of 30 m. Is this wheelchair ramp safe?

(c) Another wheel chair ramp is being built. It must be 4.8m in horizontal length. Determine the sloping length of this new ramp.

4.3.3: Practice (continued)

2. A ladder is leaning against a house. To be safe the ratio of the ladder's length to the distance of the ladder's base from the house must be 5:3.

The ratio of **the size of the ladder to the distance from the house is 5:3.**

Draw a diagram.

- (a) Determine how far the base of a 6.0 m ladder is from the house if it is being used safely.

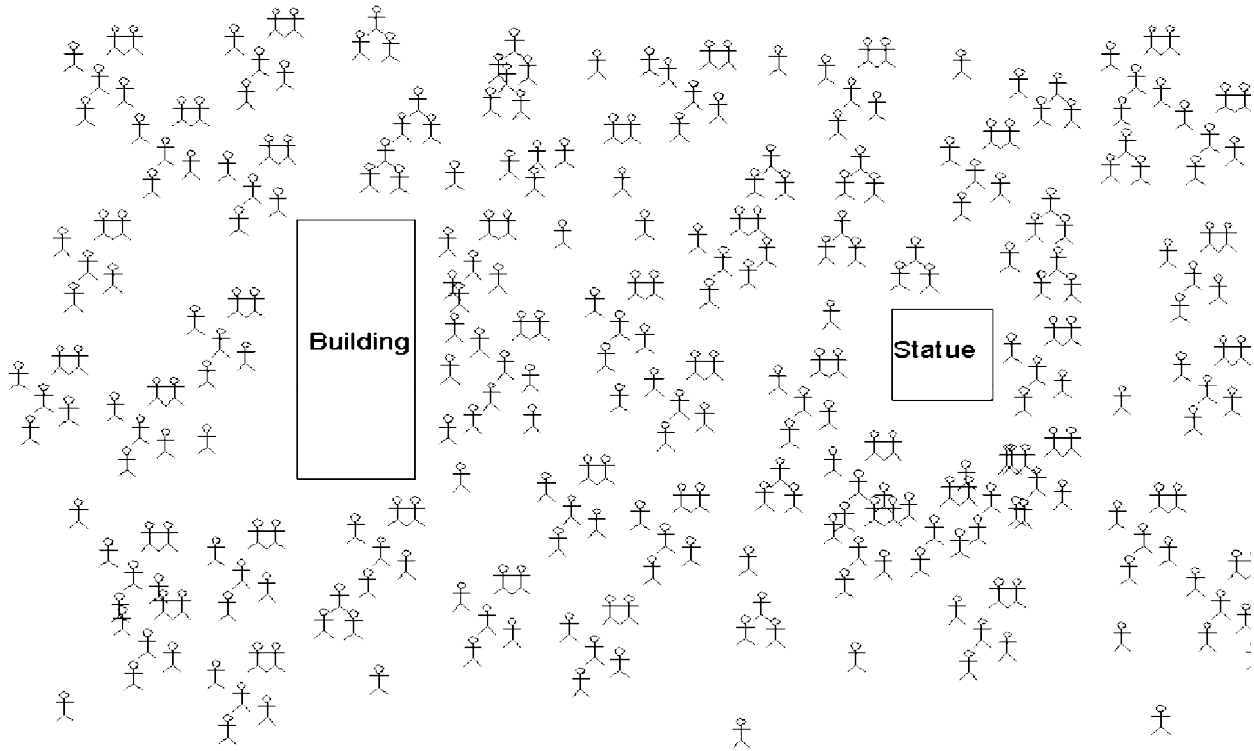
- (b) How high up a wall does a 4.5 m ladder reach if it is being used safely?

- (c) Is a 5.6m ladder is being used safely if its base is 3.3 m from the wall? Explain.

4.4.1 Estimating Crowd Size

Exercise 1: Estimating the Size of a Crowd from an Aerial Diagram

Aerial Diagram of a political rally



- Using the diagram above, choose a section to count the number of people; circle and label this section. Complete the following table

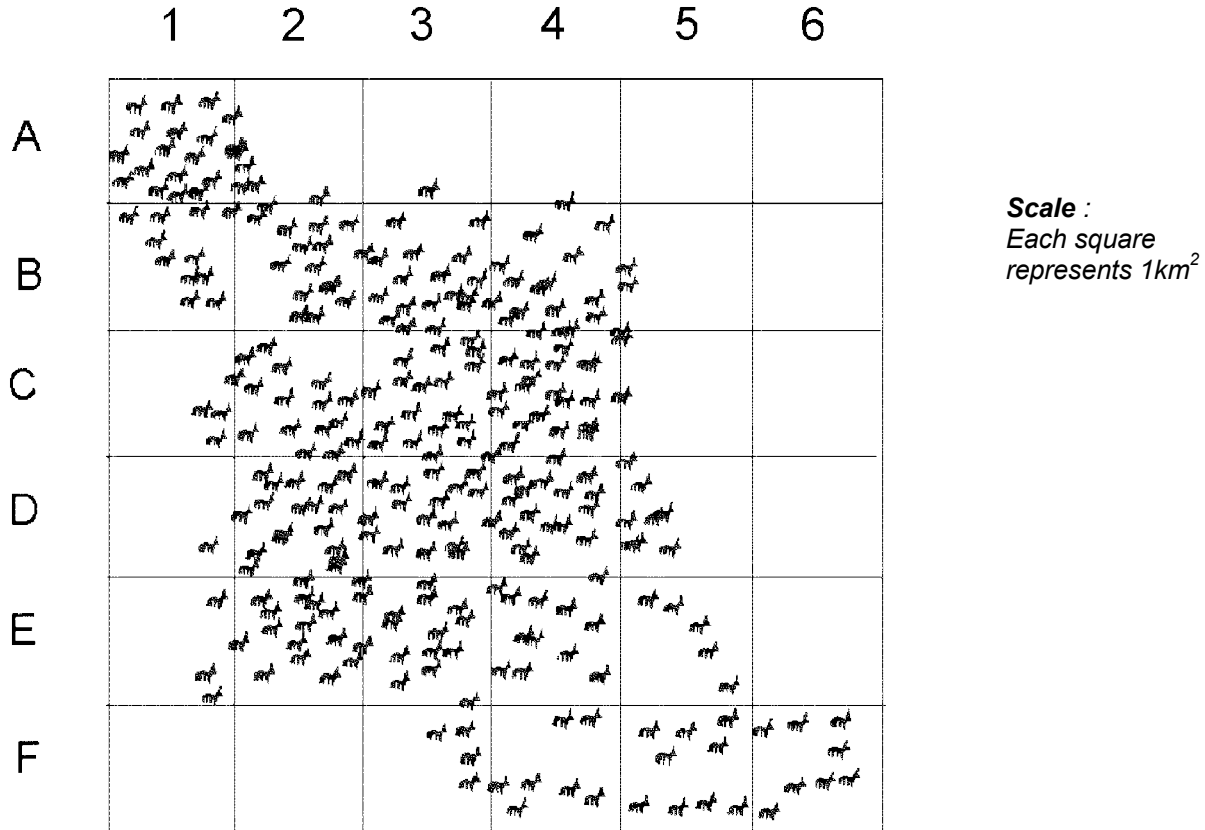
Location (code)	Number of people
Total	

- How can you use the chart to estimate the total number of people at the rally?

4.4.2 Techniques for Estimating Crowd Size

Caribou on Amethyst Island

Each year a fall caribou hunt is planned for Amethyst Island. It is important to determine how many caribou live on the island before the Ministry of Natural Resources (MNR) issues hunting licenses. The diagram below was made from the air of the herd on Amethyst Island. Determine the number of caribou that are on Amethyst Island.



1. Find the total area of the grid above.
2. Complete the following chart by counting the caribou five boxes.

Location (code)	Number of caribou
Total	

4.4.2 Techniques for Estimating Crowd Size (Continued)

3. a) Average number of caribou per square = $\frac{\text{total}}{\text{number of squares counted}}$

b) Estimate the total number of caribou on the island.

Estimated number of caribou = average number of caribou per square \times total number of squares

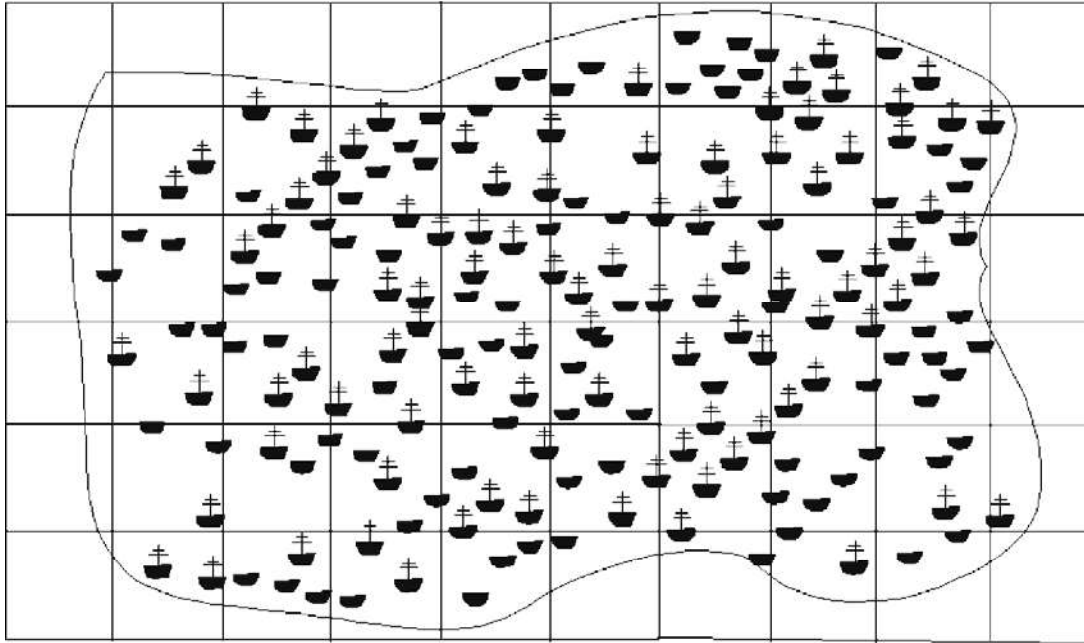
4. If the MNR has decided that one out of every six caribou can be hunted this year and each hunter can only take one caribou, how many hunting licenses should be issued?

5. If the MNR has decided that 2 out of every 9 caribou can be hunted this year and each hunter can only take one caribou, how many hunting licenses should be issued?

4.4.2 Techniques for Estimating Crowd Size (Continued)

Manitouwadge Lake Sailing Regatta

A sailing regatta is a sailing competition. Competitive sailing is a sport with small teams of eight per sailing vessel and boats 32-48 foot in length. After an initial sailing skills training, the teams will sail their boats in a series of sprint training races to practice their skills in preparation for the final regatta. Below is an aerial diagram of the Manitouwadge Lake Sailing Regatta.



Each small boat (no mast)
has two people on board.

Each large boat (with mast)
has six people on board.

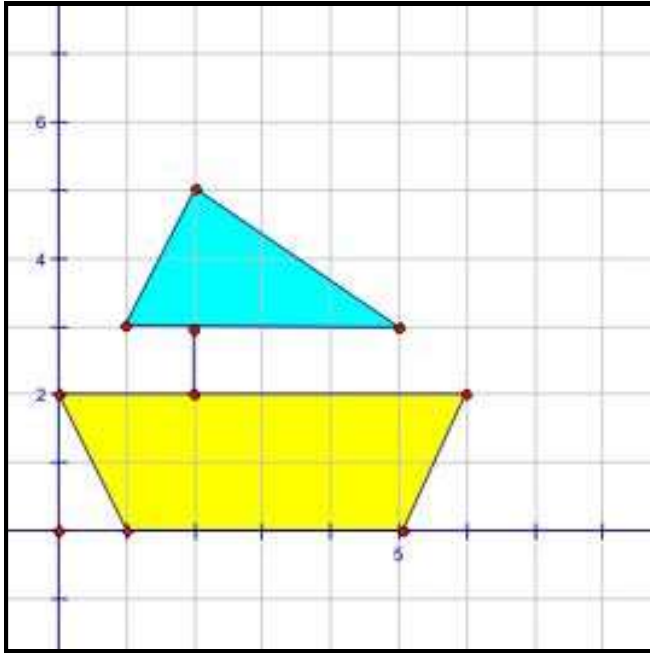
1. Using the diagram complete the following chart.

Grid Square Number	Number of small boats	# of people on small boats (2 people/boat)	Number of large boats	# of people on large boats (6 people/boat)	total # of people in the grid square

4.4.2 Techniques for Estimating Crowd Size (Continued)

1. What is the average number of people per grid square?
2. The Manitowadge Lake Sailing Association charges \$2.00 per person attending the regatta. Based on the diagram how much money have they earned? Show your work.
3. The association is thinking of changing the fee to \$5.00 per small boat and \$10 per large boat. If they made these changes for this year's competition, how much could have been earned? Show your work.
4. Should The Manitowadge Lake Sailing Association base their fees per person or per boat? Justify your answer.

4.4.3: I'm All Blown Up



4.5.1: I'd Rather Be Scaling

1. Scale = diagram measurement : actual measurement

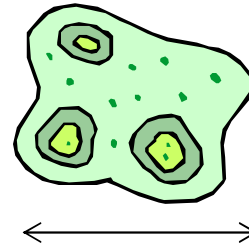
Definition	Examples
Scale diagram –	

2. Interpreting Scale Diagrams

Use a ruler to measure the line.

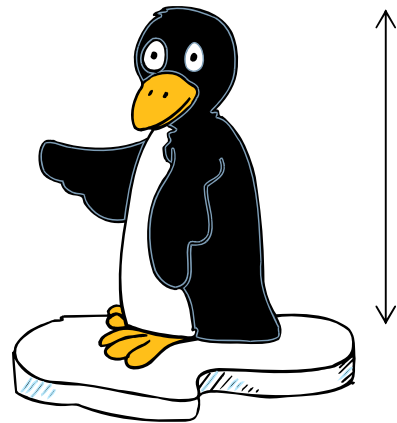
a) Finding the scale

The actual length of this cell is 0.32 mm across.
What scale was used to draw this diagram?



b) Using the scale

This diagram was drawn using a scale of 1:7.
What is the actual height of this penguin?



4.5.2: Scaling Problems

1. Complete the table.

	Scale Diagram : Actual	Diagram Measurement	Actual Measurement
i	1:400	6 cm	
ii	12000:1		0.00375 mm
iii		72 mm	0.6 mm
iv	1:250000	8 cm	

Show your work for each question:

i)

ii)

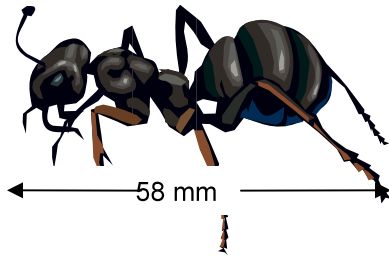
iii)

iv)

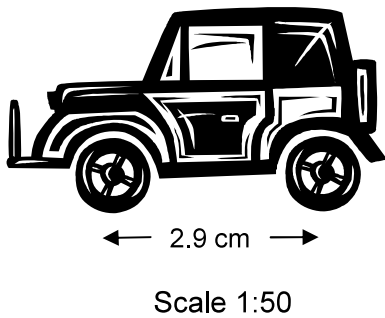
2. The prices of a baseball glove and a tennis racket are in the ratio 7:12. If the price of the racket is \$62.40, determine the price of the glove.
3. A particular mortar mix contains cement, water, and sand in the ratio 2:1:6. How much cement and water should be in a batch of mortar containing 11.4 kg of sand?

4.5.2: Scaling Problems (continued)

4. A picture of an ant is given below, determine the scale if its actual length is 2.4 mm



5. The wheelbase of a vehicle is the distance between the front and back axles. Determine the actual wheelbase of the vehicle in this scale drawing.



4.6.1: Recalling Rates

1. Express each of the following as a unit rate, rounded to two decimal places, if necessary.

a) \$1.95 for 5 folders

b) 315 words typed in 5 min

c) 300 km driven in 5 h

d) \$224 for 4 concert tickets

2. At a supermarket, three sizes of a popular breakfast cereal are available – 375 g for \$3.79, 525 g for \$4.99, and 725 g for \$5.99. The 525 g boxes have a sign saying “Best Buy”. Do you agree? Explain.

3. One brand of paper towels comes in two sizes – 2 rolls for \$1.29 and 12 rolls for \$6.99. The 2 roll size is on special this week for \$1.19. If you needed paper towels, which size would you buy and why?

4.6.2: The Going Rate

You are a truck driver for a shipping company. Your fuel tank has a capacity of 450 L, and your fuel economy is about 36 L / 100 km. Approximate distances of typical runs are provided.

Start	End	Distance (km)
Ottawa	Sault-Ste-Marie	798
Ottawa	Quebec City	459
Ottawa	Toronto	396
Quebec City	Halifax	962
Sault-Ste-Marie	Thunder Bay	704
Thunder Bay	Winnipeg	692

Problem 1: As you leave from Quebec heading towards Halifax, you notice your fuel tank is $\frac{3}{4}$ full; can you make it without stopping for fuel? If so, how much fuel will you have left? If not, how far can you make it until you need to fill up?

Step 1: How much fuel, in L, is in your tank?

Step 2: What is your fuel economy per 1 km?

Step 3: How far can you make it on that much fuel?

Solution:

Can you make it without stopping for fuel?

If so, how much fuel will you have left? **OR** If not, how far can you make it until you need to fill up?

4.6.2: The Going Rate (continued)

Problem 2: Starting with a $\frac{1}{2}$ tank of fuel, how many times will you need to fill up on a trip from Ottawa to Sault-Ste-Marie to Thunder Bay?

Step 1: How much fuel, in L, is in your tank?

Step 2: What is the total distance you need to travel?

Step 3: What is the total amount of fuel that you need?

Step 4: How many times do you need to fill your tank?

Solution:

How many times will you need to fill up on a trip from Ottawa to Sault-Ste-Marie to Thunder Bay?

4.6.3: Practice

1. Express each of the following as a unit rate, rounded to two decimal places, if necessary.

- a) 70 cm of snow in 9 h
- b) \$2.99 for 4 packs of chewing gum
- c) \$43 200 for 12 months
- d) 8 cm in 5 days
- e) \$7.50 for 6 baskets picked
- f) \$121.50 for 150 Brazilian real

2. Kyle earns \$56.85 for working one 7.5 hour day.

a) How much would he earn working five days?

b) What is his hourly rate?

c) How many hours, to the nearest half hour, does he have to work to earn at least \$100?

3. An athlete ran 5 km in 35 minutes. What is her rate in km/hr?

4. Karen paid \$0.90 per litre for gasoline. If she paid \$27.00 for the gas, how many litres did she purchase?



4.6.3: Practice (continued)

5. Oranges can be purchased at a cost of 3 for \$1.99. What is the cost for 12 oranges?

6. The Canadian dollar is worth 87 cents American. If you purchased a \$50 item in the United States, how much would it cost in Canadian funds?



7. The following are resting heart rates:

Animal	Resting Heart Rate
Lion	40 beats in 60 seconds
Giraffe	5 beats in 12 seconds
Hummingbird	41 beats in 10 seconds

Which animal has the slowest heart rate? Show your work and explain your reasoning.

4.7.1: I Remember This

Recall: Converting fractions \leftrightarrow decimals \leftrightarrow percents.

Fractions to Decimals	Decimals to Fractions
<ul style="list-style-type: none">numerator divided by denominator	<ul style="list-style-type: none">determine the place value of the number farthest to the rightput the decimal over this place value and reduce
Percent to Decimals	Decimals to Percent
<ul style="list-style-type: none">divide by 100 ORmove the decimal 2 places to the left	<ul style="list-style-type: none">multiply by 100 ORmove the decimal 2 places to the right

1. Write as a decimal. Round to two decimal places where necessary.

(a) $\frac{12}{15}$

(b) $\frac{40}{25}$

(c) 28%

(d) 136.5%

2. Write as a fraction in lowest terms.

(a) 0.24

(b) 0.07

(c) 40%

(d) 12.5%

3. Write as a percent. Round to two decimal places where necessary.

(a) $\frac{12}{25}$

(b) $\frac{18}{10}$

(c) 0.65

(d) 1.75

4.7.2: Elastic Meter and Percent

elastic

Part A: Make the elastic meter

- Take a piece of elastic 32 cm long. Mark a line at 1 cm from one end. From this point make 10 marks every 3 cm. There will be 1 cm left. (The centimetre at each end of the elastic provides a way to hold and stretch the elastic ruler.)
- On the first line write 10%; 2nd line, 20%; 3rd line, 30% (... up to 100%).

Part B: Use the elastic meter

- Estimate from the bottom to the top where 60% of the right edge of your desk would be. Put a very small pencil mark here. (Please erase it after the experiment.)
- Stretch out the elastic meter from the bottom to the top, with 0% at the floor, and 100% at the desk surface. Use the 60% mark on the elastic meter to correct your estimate.
- Use a measuring tape to measure this length. Record it in the appropriate place in the following chart.

20%

10%

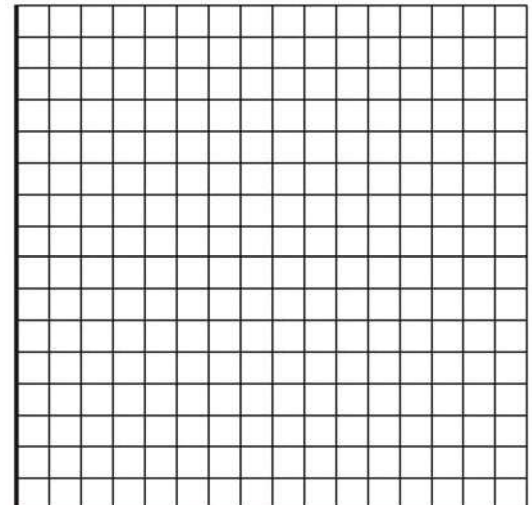
Percent %	Measure (cm)
0%	
10%	
33%	
45%	
50%	
60%	
75%	
90%	
100%	

Use your elastic meter to complete the chart.

- Graph your data on the grid below. Be sure to label your axes. Choose an appropriate scale.
- On your graph draw a line of best fit.
Interpolate: Use line of best fit to estimate the lengths of the following percents:
 - 85%
 - 65%

- 43%
- 58%

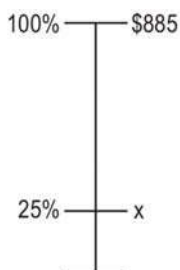
- Extrapolate:** Estimate the following lengths:
- 120%
 - 135%



4.7.3: Types of Percent Problems – Guided Lesson

1. Determining an unknown part:

- a) Do together: HDTVs are on sale for 25% off. What is the discount on a television that normally costs \$885?



- b) Do on your own: If you purchase a CD for \$18.99, how much tax would you pay? (both GST and PST)



2. Determining an unknown percent:

- a) Do together: Shuva purchased a new MP3 player on sale. It was \$219.50 originally, but she paid \$142.68, not including tax. What was the percent discount on the MP3 player?



- b) Do on your own: David was shopping for a new pair of shoes. He found a pair that was \$89.99 on sale for \$22.50 off. What was the percent discount on the shoes?

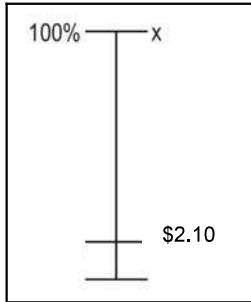


4.7.3: Types of Percent Problems – Guided Lesson (continued)

3. Determining the unknown whole:

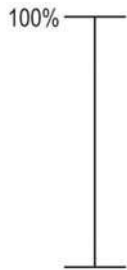
a) Do together:

Cayla wanted to return a defective calculator, but her dog Buster had chewed up the receipt. She could still see that the 15% tax came to \$2.25. What was the cost of Cayla's calculator?



b) Do on your own:

Himay was very happy because his new cell phone was on sale for 40% off and was only \$65.00. What was the original price of Himay's phone?



4.7.4: Practice

1. Express each of the following as a percent.

(a) 12 out of 16

(b) one fifth

(c) $\frac{14}{35}$

(d) 80:50

2. Find the number for each of the following.

(a) 25% of a number is 5.

(b) 120% of a number is 48.

3. Find the amount for each of the following.

(a) 15% of 125g

(b) 9% of 45 cm

4.7.4: Practice (continued)

4. A skateboard is priced at \$92.00 and is reduced by 20%.
 - (a) What is the amount of the discount on the skateboard?

 - (b) Calculate the new price of the skateboard.

5. In 2004, the cost to join a gym was \$169.00.
In 2005, the cost was 7% more.
How much did it cost to join the gym in 2005?

4.7.4: Practice (continued)

6. On average, a girl will reach 90% of her final height by the time she is 11 years old and 98% of her final height when she is 17 years old.
- (a) Beth is 11 years old. She is 150cm tall.
Estimate her height when she is 20 years old.
- (b) Lena is 17 years old. She is 176 cm tall.
Estimate her height when she is 30 years old.
- (c) Jodi is 35 years old. She is 165 cm tall.
- (i) Estimate her height at 11 years old.
- (ii) Estimate her height at 17 years old.

4.7.5: Journal Activity

In the space provided, create your own percent reference sheet, showing examples of the various types of percent problems.

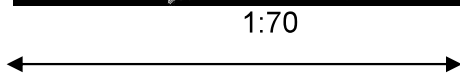
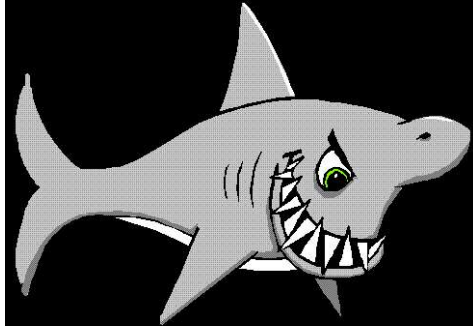
4.8.2: Review Relay

<p>1. Reduce the ratios to lowest terms:</p> <p>15:35 =</p> <p>$\frac{18}{6} =$</p> <p>144:72 =</p>	<p>2. Calculate the following percents:</p> <p>45% of 220 =</p> <p>120% \times 555 =</p> <p>1.5% \times 1400 =</p>
<p>3. The driving distance from Thunder Bay to Vancouver is approximately 2500 km. How long would it take you to drive from Thunder Bay to Vancouver at 90 km/hour without making any stops?</p>	<p>4. If the ratio of the Canadian dollar to the US dollar is \$1.04:\$1.00, how much Canadian money is equivalent to US\$250?</p>

4.8.2: Review Relay (continued)

5. Measure the length indicated in centimetres. What is the actual length of the shark, in metres?

Scale Diagram



6. You want to purchase a new shirt that costs \$22.50.

a) How much tax will you have to pay including GST and PST?

b) What is the total cost of your shirt?

7. You are shopping for DVDs at the video store with a \$30.00 gift certificate that you received from a friend. You find a great DVD that was \$34.50 on sale for 25% off.

Do you have enough money to buy the DVD including GST and PST?

8. You are working at Tecky Television Sales. Recall that the HDTV's width:height ratio is 16:9. A customer wants to know:

a) If he has an entertainment centre that has an opening that is 48 inches wide, how high will the cabinet opening have to be?

b) If the cabinet opening is 48 inches by 32 inches, will a 50-inch HDTV fit inside?

4.8.3: Practice (continued)

5. Determine the better buy for each of these school supplies. Show your calculations.

(a) A box of 12 pens for \$2.59 or a box of 15 pens for \$3.35.

(b) 250 sheets of graph paper for \$2.39 or 120 sheets for \$1.15.

6. Kelly ran 8 laps of the track in 18 minutes. Jack ran 6 laps in 10 minutes. Who had the greater average speed? Explain.

7. Carl bought a football jersey with a regular price of \$129.49. The jersey was on sale for 30% off, and the taxes were 13%. Determine each amount.

(a) the discount

(b) the sale price

(c) the taxes

(d) the total amount Carl paid

4.8.3: Practice (continued)

8. Determine the missing value for each of the following.

(a) $\frac{64}{72} = \underline{\hspace{2cm}}\%$

(b) 15% of $\underline{\hspace{2cm}}$ = 6

(c) 32% of 65 = $\underline{\hspace{2cm}}$

(d) 0.08% of 25 000 000 = $\underline{\hspace{2cm}}$

(e) $\frac{124}{96} = \underline{\hspace{2cm}}\%$

(f) 135% of $\underline{\hspace{2cm}}$ is 108.

9. A stop sign has an actual width of 60 cm. Determine the scale of the diagram below.



4.8.3: Practice (continued)

10. The Canadian Flag has a width to height ratio of 2:1. On a 1:50 scale drawing of a flag its width is 13.0 cm. What is the actual size of this flag?



Actual height: _____

Actual width: _____

4.W: Definition Page

Term	Picture / Sketch / Examples	Definition
Constant of Proportionality		
Equivalent Ratios		
Fraction		
Lowest Terms		
Percent		
Probability		
Qualitative		
Quantitative		
Rate		

4.W: Definition Page (continued)

Term	Picture / Sketch / Examples	Definition
Ratio		
Scale		
Scale Diagram		
Scaling		
Unit Price		
Unit Rate		

4.S: Unit Summary Page

Complete the concepts circles for Rate, Ratio and Percent.



Ratio

Percent

Rate

4.R: Reflecting on My Learning (3, 2, 1)



3 Things I know well from this unit

2 Things I need explained more

1 Question I still have

4.RLS: Reflecting on Learning Skills

Students should be aware of the importance that these skills have on your performance. After receiving your marked assessment, answer the following questions. Be honest with yourself. Good Learning Skills will help you now, in other courses and in the future.

E – Always

G – Sometimes

S – Need Improvement

N – Never

Responsibility:

E G S N I fulfilled my responsibilities and commitments within the learning environment.

E G S N I completed & submitted class work, homework, and assignments according to agreed-upon timelines.

E G S N I took responsibility for and managed my own behaviour.

Organization:

E G S N I devised and followed a plan and process for completing work and tasks.

E G S N I established priorities and managed my time to complete tasks and achieve my goals.

E G S N I identified, gathered, evaluated, and used information, technology, and resources to complete tasks.

Independent Work:

E G S N I independently monitored, assessed, and revised plans to complete tasks and meet my goals.

E G S N I used class time appropriately to complete tasks.

E G S N I followed instructions with minimal supervision.

Collaboration:

E G S N I accepted various roles and an equitable share of work in a group.

E G S N I responded positively to the ideas, opinions, values, and traditions of others.

E G S N I built healthy peer-to-peer relationships through personal and media-assisted interactions.

E G S N I worked with others to resolve conflicts and build consensus to achieve group goals.

E G S N I shared information, resources, and expertise and promoted critical thinking to solve problems and make decisions.

Initiative:

E G S N I looked for and acted on new ideas and opportunities for learning.

E G S N I demonstrated the capacity for innovation and a willingness to take risks.

E G S N I demonstrated curiosity and interest in learning.

E G S N I approached new tasks with a positive attitude.

E G S N I recognized and advocated appropriately for the rights of myself and others.

Self-regulation:

E G S N I set my own individual goals and monitored progress towards achieving them.

E G S N I sought clarification or assistance when needed.

E G S N I assessed and reflected critically on my own strengths, needs, and interests.

E G S N I identified learning opportunities, choices, and strategies to meet personal needs & achieve goals.

E G S N I persevered and made an effort when responding to challenges.

What will I do differently in the next unit to improve?
