Kitchen Math

Everyday Math Skills | 2009
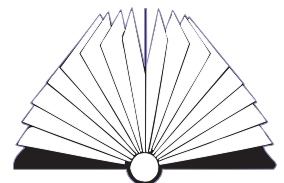
Acknowledgements

Contact the NWT Literacy Council to get copies of the *Kitchen Math Workbook*. Or you can download it from our website.

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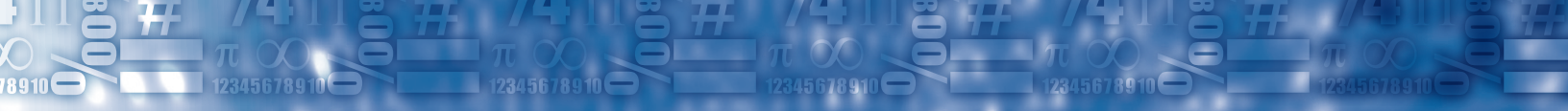Website: www.nwt.literacy.ca
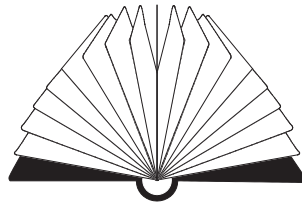
NWT Literacy Council

Table of Contents

Introduction

Math is everywhere and yet we may not recognize it because it doesn't look like the math we did in school. Math in the world around us sometimes seems invisible. But math is present in our world all the time – in the workplace, in our homes, and in our personal lives.

You are using math every time you go grocery shopping, bake something, buy something on sale or plan a birthday party for your child.

Kitchen Math is one workbook of the *Everyday Math Skills* series. The other workbooks are:

- *Money Math*
- *Home Math*

We have also developed a math skills booklet called *Simply Math* to help learners with different math operations that are needed for this series.

Kitchen Math has three sections. Each section has a variety of topics and worksheets and a review page. The workbook is designed so that you can work on your own or with others in your class.

Section One: Shopping for the Kitchen

There is a lot of math involved when shopping for food and kitchen items. You must estimate costs, plan for meals and budget your money for groceries. This section provides you with practice on comparison shopping, finding the unit cost and buying large appliances for the kitchen.

Section Two: Using Measurement

We use a lot of math when we bake and cook. In this section you will learn how to double recipes, compare ratios, use metric measurements and cook in batches. This section has some great recipes. Try them out!

Section Three: Nutrition

Nutrition is about what you eat. Eating good foods helps us stay healthy and live well. In this section you will learn about calories, how to read food labels and eat in a healthy way, while practising math concepts and skills.

The math skills are embedded into real-life situations and activities. Many of the worksheets require that you actively do something like bake muffins or go to the store to comparison shop.

In this workbook you will do the following skills:

- Addition and subtraction
- Multiplication and division
- Order of operations
- Rounding off
- Estimation
- Reading charts

- Fractions
- Decimals
- Percents
- Ratios
- Metric measurement
- Problem solving

Shopping for the Kitchen

In this section you will be required to use a variety of math skills:

- Addition
- Subtraction
- Multiplication
- Division
- Estimation
- Rounding off

- Decimals
  o Addition
  o Subtraction
  o Multiplication
  o Division
- Percents
- Metric measurement

This section has the following worksheets:

It also has a page for math projects on this topic.

This section was adapted from *Kitchen Math* by Susan Brendel, J.Weston Walch Publisher, 1998

The Food Budget #1

Addition and subtraction

A budget is a plan for spending money. Many people plan how much money they want to spend for food each week. They try not to spend more than the amount in their budget.

Example: Mary Rose's food budget is $175 per week. So far she has spent $101.

Problem: How much does she have left for the rest of the week?

Solution:

Amount in budget:	$175
Subtract the amount spent	−101
	$74

She has $74 left.

Directions: Answer the questions below.

1. Tony planned to spend $100 for food this week. On Monday he spent $22 and on Thursday he spent $52. How much money does he have left for the week? _____

2. Kate's food budget for the month is $700. The first week she spent $189, the second week she spent $200 and the third week she spent $150. How much did she spend? _____ How much does she have left for the last week? _____

3. Last week Karen spent $121.35 on food for her family. She only has $200 to spend every two weeks. How much does she have left to spend? _____

4. Mike and Lisa try not to spend more than $150 per week on groceries (including going out to eat). Mike spent $84 on groceries and Lisa spent $23. They both went out for lunch on Wednesday and spent $30. How much money do they have left for groceries or dining out? _____

The Shopping List #2

Multiplication, division and addition

Have you ever gone to the grocery store and then forgotten half of the things you wanted to buy? Smart shoppers make a list of what they need to buy before going shopping. A list will help you remember what you need and it will help you avoid buying things that you don't need.

The Northern Store			
Orange juice	$2.19	Container of olive oil	$9.59
Cheese slices (one package)	$8.95	Ice cream (1 litre)	$5.79
Frozen pizza	$12.99	Large eggs (1 dozen)	$3.99
Parmesan cheese	$7.89	Low fat milk (2 litres)	$4.99
Spaghetti noodles	$2.99	Pork chops (2)	$4.98
Cereal	$6.99	Chicken breasts (4)	$11.98
12 grain bread	$3.49	1 container of yogurt	$.99

Directions: Use the prices above and find the total cost of the items on each person's shopping list. You may need another sheet of paper to do the problems. The first one is done for you.

1. Lisa's List	$ Each	Cost
2 pizzas	2 × $12.99	$25.98
1 cereal	$6.99	$6.99
2 dozen eggs	2 × $3.99	$7.98
2 packages of cheese	2 × $8.95	$17.90
	Total	$58.85

2. Jill's List	$ Each	Cost
2 orange juice		
2 spaghetti noodles		
6 pork chops		
12 yogurt		
	Total	

3. Joe's List	$ Each	Cost
1 parmesan cheese		
2 litres ice cream		
2 loaves of bread		
8 chicken breasts		
	Total	

4. Mike's List	$ Each	Cost
1 olive oil		
3 frozen pizzas		
4 pork chops		
2 spaghetti noodles		
	Total	

5. Mary's List	$ Each	Cost
2 low fat milk		
3 litres of ice cream		
2 chicken breasts		
3 packages of cheese slices		
	Total	

More on Shopping Lists #3

Multiplication, division and addition

Below is a list of food and prices. Use the list to answer the questions below.

kilogram (kg)   litre (L)   1 dozen = 12

Cheese	$7.88/kg
Tomatoes	$3.89/kg
Bananas	$1.99/kg
Milk	$2.49/L
Bread	$3.79/loaf
Oranges	$5.99/kg
Grapes	$4.89/kg
Eggs	$2.69/dozen

Directions: Jack has $65 for grocery shopping. Calculate the total amount of the shopping list below. Does Jack have enough money? The first one is done for you.

Quantity of Grocery Item	Price	Total	Running Total
2 kg of tomatoes	$3.89/kg	$7.78	$7.78
2 kg of oranges	$5.99/kg		
½ kg of cheese	$7.88/kg		
3 dozen eggs	$2.69/dozen		
2 kg of grapes	$4.89/kg		
2 L of milk	$2.49/L		
3 loaves of bread	$3.79/loaf		
4 kg of bananas	$1.99/kg		

Shopping for the Kitchen

What was the total amount spent on shopping? _____

How much money will be left over, or how much more money is needed?
_____

Does Jack have enough money? _____

Estimating Your Groceries #4

Estimation, multiplication and addition

Usually when we go to the grocery store we don't have a calculator with us. We usually estimate how much things will cost.

Part 1: Emily has $60 for grocery shopping. When shopping, Emily estimates the total amount of the groceries. To estimate, round each item to the nearest dollar. Keep track of the running total to see if Emily has enough money. The first one is done for you.

Item on list	Price per unit	Your estimate	Estimate running total
3 kg of ground beef	$2.69/kg	$9.00	$9.00
3 kg of chicken	$3.99/kg		
5 cartons of juice	$2.28/carton		
2 kg of bananas	$.99/kg		
2 packages of butter	$3.29/package		
3 dozen(12) eggs	$2.59/doz		
5 kg of potatoes	$1.19/kg		
2 packages of carrots	$3.19/package		

Calculate the total without estimating. _____

What is the difference between the actual and the estimate? _____

Part 2: Jacob has $75 for grocery shopping. When shopping, Jacob estimates the total amount of groceries. To estimate, round each item to the nearest dollar. Keep track of the running total to see if Jacob has enough money. The first one is done for you.

Item on list	Price per unit	Your estimate	Estimate running total
5 loaves of bread	$3.05/loaf	$15.00	$15.00
2 kg of apples	$3.99/kg		
3 boxes of cereal	$3.89/box		
4 cans of beans	$1.29/can		
5 cans of pizza sauce	$.89/can		
4 boxes of macaroni and cheese	$1.79/box		
4 L of milk	$2.69/2L		
2 kg of cheese	$4.78/kg		

Calculate the total without estimating. _____

What is the difference between the actual and the estimate? _____

Using Coupons #5

Subtraction, multiplication

Coupons printed in newspapers and magazines can save you money on food. You need to cut out the coupon and bring it to the store. Give your coupon to the cashier when you pay for the item.

Example: This coupon is worth 50 cents off the price of a box of cereal.

Problem: How much will you pay for the cereal if you use this coupon?

Solution: Find the original price of the cereal. $2.99
Subtract the worth of the coupon. — .50
$2.49

You will pay $2.49.

> **Save 50¢**

Part 1: This coupon was printed in the newspaper. Look at the coupon and answer the questions below.

> **Save 75¢**
>
> Expires March 31st.
> Limit 2 per person

1. What amount of money can this coupon save you? _____

2. Does this coupon tell you the price of the item? _____

3. Can you use this coupon any time you want? _____ Why? _____

4. Can you buy as many as you would like? _____ Why?

   _____

5. If the regular price is $1.59, what will you pay if you use this coupon? _____

6. How much would you pay if you wanted to buy 2 packages? _____

Part 2: This coupon was printed in the newspaper. Look at the coupon and answer the questions below.

7. What amount of money can this coupon save you?
    _____

8. Does this coupon tell you the price of the item?
    _____

9. Can you deduce how much one jar of jam is?
    _____ How much is one jar?
    _____

Coupon:

**Buy One
Get One Free**

Save $3.99

Expires May 20th
Limit 4 per person

10. Can you use this coupon any time you want? _____ Why ?
    _____

11. Can you buy as many as you would like? _____ Why?
    _____

12. How much would you pay if you took home 2 jars of jam? _____

13. How much would you pay if you took home 4 jars of jam? _____

Planning for Snacks for an Event #6

Multiplication of decimals and addition

Suppose your program gave you $200 to buy snacks for a family literacy night celebration. There will be around 40 people there. You have to spend as much of the $200 as possible without going over.

<table>
<tr><td colspan="4">Food Price List</td></tr>
<tr><td>Bag of oranges (10)</td><td>$7.50</td><td>Muffins (6)</td><td>$4.99</td></tr>
<tr><td>Bag of apples (10)</td><td>$8.25</td><td>Cookies (bag)</td><td>$5.21</td></tr>
<tr><td>1 pineapple</td><td>$7.99</td><td>Broccoli (1 head)</td><td>$4.15</td></tr>
<tr><td>1 box of crackers</td><td>$3.50</td><td>Cauliflower (1 head)</td><td>$4.89</td></tr>
<tr><td>1 block of cheese</td><td>$8.32</td><td>Carrots (bag)</td><td>$4.99</td></tr>
<tr><td>1 package of pepperoni</td><td>$5.99</td><td>Cucumber (1 English)</td><td>$3.89</td></tr>
<tr><td>Coffee (Tin)</td><td>$10.50</td><td>Vegetable dip (1 jar)</td><td>$6.45</td></tr>
<tr><td>Milk (1 jug)</td><td>$8.89</td><td>Dried caribou</td><td>Free</td></tr>
<tr><td>Juice boxes (6 per package)</td><td>$4.50</td><td>Dried fish</td><td>Free</td></tr>
</table>

Directions: Work with someone in your program and decide which of the foods above you might want for your snacks. Write the type of snack you want and the quantity and the cost in the chart on the next page. Tally up your amounts.

Planning for Snacks

Foods We Chose	Price	Amount	Cost
Total Cost			

We had $_____ left over from the $200

Planning a Cookout #7

Multiplication and division

The class wants to have a cookout with their families. The students are planning the menu now. They need to know how much food to buy for everyone.

Example: There will be 22 people at the cookout. Each person will eat on average 3 cookies. One package of cookies has 12 cookies.

Problem: How many packages do they need to buy?

Solution: This is a two-step solution.

Step 1: 22 x 3 = 66

They will need 66 cookies for everyone.

Step 2: 66 ÷ 12 cookies per package = 5.5
Round to the nearest whole number   6

They will need to buy 6 packages of cookies for the cookout.

Directions: Here is the list of food for the cookout. Look at the quantities. Figure out how much you will need of each item. If you figure out that you will need 5.2 bags of cookies, you will need to round your answer up to 6 bags to have enough cookies for everyone. The first one is done for you.

hot dogs (12 per package)   juice boxes (6 per package)
buns (8 per package)   apples (10 per bag)
marshmallows (45 per package)   cookies (16 per package)
dried caribou (10 slices per bag)

For each person	**For 22 people?**	**How many to buy?**
3 cookies	__66__ cookies	__5__ packages
2 hot dogs	_____ hot dogs	_____ packages
2 buns	_____ buns	_____ packages
1 juice box	_____ boxes	_____ packages
2 slices of dried caribou	_____slices	_____ bags
4 marshmallows	_____marshmallows	_____packages

For each person	**For 40 people?**	**How many to buy?**
2 cookies	_____ cookies	_____ packages
2 hot dogs	_____ hot dogs	_____ packages
2 buns	_____ buns	_____ packages
1 juice box	_____ boxes	_____ packages
2 slices of dried caribou	_____slices	_____ bags
5 marshmallows	_____marshmallows	_____packages

How Much for One? #8

Division of decimals and rounding off to the nearest cent

Example: Pat saw this price marked on a carton of yogurt. It seemed like a good price, but Pat only wanted to buy one carton

3/$1.88
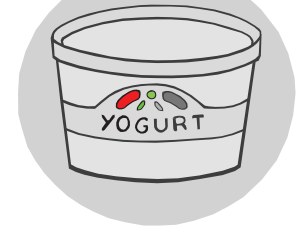
Problem: How much would one carton cost?

Solution: Divide the price by the quantity. 1.88 ÷ 3= $.626666
The problem does not come out even.

The price for one carton will be rounded up to the nearest cent = $.63 or 63¢.

Part 1: How much will you pay for one in cents? (round to the nearest cent)

1. 5/$1.00 _____   2. 4/$.99 _____   3. 3/.$75 _____

4. 5/$2.99 _____   5. 3/$1.99 _____   6. 4/$1.89 _____

Part 2: How much will they pay in cents? Round to the nearest cent.

7. Randy wants a can of frozen orange juice. The price is marked 3/$2.89 on the can.
    What will one cost? _____

8. Kim wants to buy one apple. The price says 3/$1.50. How much will she pay for
    one? _____

9. There is a sale on macaroni and cheese. You can buy 12 boxes for $5.89. How much
    would Marie pay for one box? _____

10. Lisa wants to buy one orange for her lunch. The store sells them at 4/$2.15. What
    will Lisa pay for one? _____

Buying Fresh Produce #9

Division of decimals, multiplication of decimals, rounding off decimals to the nearest cent and metric conversion

In the produce section of your store, fruits and vegetables are often priced both in kilograms and pounds. You will need to convert kilograms to pounds and pounds to kilograms in this exercise.

Remember: 1 kilogram (kg) = 2.2 pounds (lb)

Example 1:   Bananas cost $.89/lb.

Problem 1:   How much would it cost for 5 lbs of bananas?

Solution 1:   5 x $.89 = $4.45 per 5 lbs of bananas

Problem 2:   And how much would it cost for 5 kg?

Solution 2:   We first must convert the cost of the bananas to kilograms.

$.89 x 2.2 = $1.96 (rounded off to nearest cent)

$1.96 x 5 = $9.80   *It will cost $9.80 for 5 kilograms of bananas.*

Example 2:   Oranges cost $3.89/kg.

Problem 1:   How much would it cost for 3 kg of oranges?

Solution 1:   3 x $3.89 kg = $11.67 for 3 kg of oranges.

Problem 2:   And how much would it cost for 3 lbs of oranges?

Solution 2:   We first must convert the cost of the oranges to pounds.

$3.89 ÷ 2.2 = $1.77(rounded off to nearest cent)

$1.77 x 3 = $5.31   *It will cost $5.31 for 3 lbs of oranges.*
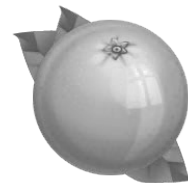
Directions: Find the cost of the food in each problem below. Round off your answer to the nearest cent. Some questions have two steps.

1. Oranges

4 pounds
$1.69/lb
Answer: _____

2. Potatoes

5 lbs
$.87/lb
Answer:_____

3. Apples

3 lbs
$4.59/kg
Answer: _____

4.
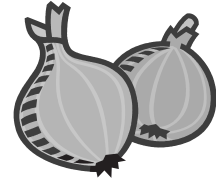
10 lbs
$1.40/kg
Answer: _____

5. Grapes

2 lbs
$3.79/lb
Answer: _____

6. Tomatoes

3 lbs
$5.89/kg
Answer:_____

7. Cucumber

4 lbs
$6.55/kg
Answer: _____

8. Carrots
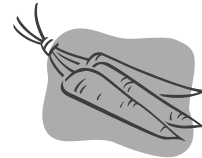
10 lbs
$.42/lb
Answer: _____

9. Mary wants to buy a pumpkin for Halloween. They are $.87/lb. The one she picks out is 5.6 lbs. How much is the pumpkin? _____

10. Larry picks out 8 apples. These apples are priced at $2.19/lb. The apples weigh 1.75 lbs. What will Larry pay? _____

11. The sign says that the baby red potatoes are $2.89/kg. If Lynne bought 5 lbs of potatoes, how much will she pay? _____ *(Hint: you must convert the price of $2.89/kg into price/ pounds or you can convert 5 pounds to kilograms)*

12. Gayle buys some juicy red Roma tomatoes. They weigh 2.6 pounds and cost $2.79 per pound. What will Gayle pay for the Roma tomatoes? _____

13. Laurie loves oranges. She bought a 10 kg box of oranges. They were priced at $1.29/lb. How much did you pay for the box of oranges? _____
    (Hint: you must convert the 10 kg into pounds)

14. Susan buys 5 lbs of grapes. The grapes cost $1.99/lb. How much does she pay for her grapes? _____

15. Use the chart below as a guide to determine the total cost of the items indicated.

Remember: 1 kilogram (kg) = 2.2 pounds (lb)

Produce Item	Bananas	Oranges	Mushrooms	Squash
Price per pound	$.99/lb	2.19/lb	$4.89/lb	$2.05/lb

    a. 4 lbs of bananas   _____

    b. ½ lb of mushrooms   _____

    c. 2 lbs of squash   _____

    d. 5 lbs of oranges   _____

    e. 3 lbs of mushrooms   _____

    f. 1 kg of oranges   _____

    g. 2 kg of bananas   _____

    h. 3 ½ lbs of squash   _____

Which is the Better Deal? #10

Metric conversion, division of decimals

Often grocery stores have several brands of food items and often they come in different sizes. It is important that you can compare different food items to make sure you are getting the best deal. To find out which size is cheaper you must find the **unit price** for the product.

You will need to know the following for this worksheet.

1 L = 1000 mL   1 kg = 1000 grams

Example 1:   4 kg of chicken cost $9.80 or 5 kg of chicken costs $11.15.

Problem: Which is cheaper?

Solution: Find the unit price for each package.
$9.80 ÷ 4 kg = $2.45/kg
$11.15 ÷ 5 kg = $2.23/kg

The 5 kg package of chicken is cheaper.

Example 2:   750 mL of pop for $2.29 or 550 mL for $1.89

Problem: Which is cheaper?

Solution: Find the unit price for each one.

Step 1:   First you must convert the mL into L and then compare.

750 mL = .75 L   550mL = .55 L

Step 2: $2.29 ÷ .750 = $3.05 per L

$1.89 ÷ .55 = $3.44 per L

The 750 mL bottle of pop is cheaper.

Directions: Find the unit prices for each item below. Which is the better buy – **a** or **b**? You will need to round off some answers to the nearest cent.

Please note that you will need to convert some metric units. Use litres or kilograms for your calculations instead of millilitres or grams.

Item		Retail Prices	Unit Price	Better Buy ☑
1. Yogurt	a.	3 cartons for $1.95	_____	_____
	b.	2 cartons for $1.45	_____	_____
2. Ginger Ale	a.	6-pack for $3.98	_____	_____
	b.	12-pack for $7.75	_____	_____
3. Flour	a.	1.5 kg for $4.99	_____	_____
	b.	2 kg for $6.00	_____	_____
4. Macaroni	a.	500 g for $3.88	_____	_____
	b.	1 kg for $5.59	_____	_____
5. Juice	a.	250 mL for $1.99	_____	_____
	b.	750 mL for $4.49	_____	_____
6. Pizza sauce	a.	250 mL for $.99	_____	_____
	b.	1 L for $4.99	_____	_____

7. Jodi is on a tight budget. She really needs to make sure she gets the best buy. One of the items on her shopping list is laundry detergent. She has three options.

    a. 1 kg for $8.99

    b. 1.5 kg for $9.90

    c. 2.5 kg for $16.75

Which is the best buy for Jodi? _____

Buying Large Quantities #11

Division, multiplication of decimals, subtraction of decimals

One way to save money is to buy food in large amounts. But you should be able to use the food you buy. And you must know how to compare quantities and costs.

Example 1:   The Coop Warehouse sells macaroni in 1.5 kg (or 1500 g) boxes for $5.89. Another store sells smaller 500 g boxes for $3.19.

Problem: How much can you save if you buy the 1.5 kg box?

Solution: Step 1: Divide to compare quantities. $1500 \div 500 = 3$
                  3 - 500 gram boxes makes a 1.5 kg box.

Step 2: Multiply to find the cost of 3 - 500 grams boxes of macaroni
                  $3.19 x 3 = $9.57
                  Three 500 g boxes cost $9.57

Step 3: Subtract to find the savings
                  $9.57 - $5.89 = $3.68

You can save $3.68 if you buy the 1.5 kilogram box of macaroni.

Example 2:   The local grocery store sells small and large cans of tomatoes: 1kg (1000 grams) for $3.89 or 500 grams for $2.89.

Problem: How much can you save if you buy the 1kg can of tomatoes?

Solution: Step 1: Divide to compare quantities. $1000 \div 500 = 2$

Step 2: Multiply to find the cost of 2 smaller cans of tomatoes
                  2 x $2.89 = $5.78

Step 3:   Subtract to find the savings
                  $5.78 - $3.89 = $1.89

You can save $1.89 if you buy the 1 kg can of tomatoes.

Directions: Compare the quantities and costs to solve the problems.

1. Rice comes in a 10 kg bag at the Coop Warehouse for $17.89. Another store sells the rice in smaller amounts.
   - a. 2.5 kg bag for $7.49
   - b. 2 kg bag for $6.50
   - c. 1 kg bag for $3.89

   Compare these prices to the 10 kg bag for $17.89. How much can you save by buying the 10 kg bag? The first one is done for you.

   - a. $10 \div 2.5 = 4$ $4 \times \$7.49 = \$29.96$ $\$29.96 - \$17.89 = \$12.07$ savings

   - b. _____

   - c. _____

2. At the Coop Warehouse a 5 kg bag of sugar costs $6.89. Another store sells a 2.5 kg bag for $4.29.

   - a. What is the cost of the 5 kg of sugar if you buy 2 – 2.5 kg bags?
     _____

   - b. How much can you save if you buy the 5 kg bag?
     _____

3. Flour comes in 10 kg bags for $7.99 at the Coop Warehouse. Another store sells 2 kg bags for $4.50.

   - a. What is the cost of 10 kg if you buy the 5 – 2 kg bags?
     _____

   - b. How much can you save if you buy the 10 kg bag? _____
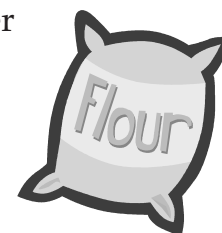
4. Cereal comes in 3 kg boxes at the Coop Warehouse for $8.99. Another store sells 500 g boxes for $2.29.

    a. How many 500 g boxes would you need to buy to get 3 kg of cereal? _____

    b. What is the cost of 3 kg of cereal if you buy the 500 g boxes? _____

    c. How much can you save if you buy the 3 kg box of cereal? _____

5. You can buy pasta in large boxes for $5.99. These boxes are 2 kg. Or you could buy a 500 g box of pasta for $1.99.

    a. How many 500 g boxes are in a 2 kg box? _____

    b. What is the cost of 2 kg of pasta if you buy the 500 g boxes? _____

    c. How much money can you save if you buy the 2 kg box of pasta? _____

Sale Items #12

Multiplication, multiplication of decimals, subtraction of decimals, percents

Sometimes grocery stores have things on sale. Often they use a percentage off if the item is large. For example, in small northern communities the Northern Store often has kitchen appliances you can buy.

Example 1: Sandy saw this ad for a blender she wanted to buy. It said "15% OFF."

Problems: a) How much will the discount save her?

   b) How much will Sandy pay for the blender?

15% off

Reg. price $55
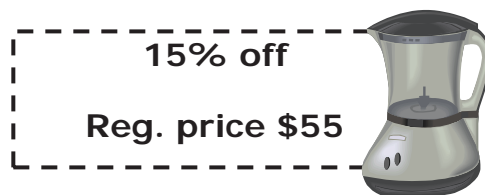
Solutions: Before you start you must convert the % into a decimal. 15% = .15 (move the decimal two places)

a) $55 (regular price)
   x.15 (discount)
   $8.25

b) $55 (regular price)
   —$8.25
   $46.75

She will save $8.25.

She will pay $46.75.

Example 2: Joe saw this ad for a toaster oven. It said "20% OFF."

Problems: a) How much will the discount save him?

b) How much will Joe pay for the toaster oven?

20% off

Reg. price $120
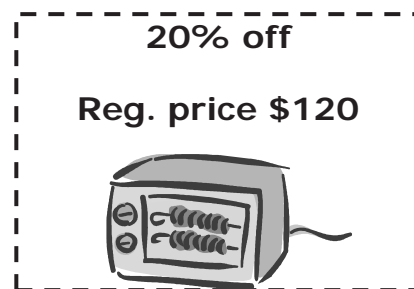
Solutions   20% = .20

a) $120 (regular price)
   x.20 (discount)
   $24

b) $120(regular price)
   —$24
   $96.00

He will save $24.

He will pay $96.

Directions: Find the savings and final prices for these kitchen appliances.

1. **Food Processor**
   10% OFF
   Reg. $189

   You save _____   You pay _____

2. **Coffee Maker**
   25% OFF
   Reg. $59

   You save _____   You pay _____

3. **Toaster Oven**
   30% OFF
   Reg. $69

   You save _____   You pay _____

4. **Microwave Oven**
   20% OFF
   Reg. $129

   You save _____   You pay _____

5. **Mini-fridge**
   35% OFF
   Reg. $259

   You save _____   You pay _____

6. **Blender**
   25% OFF
   Reg. $99

   You save _____   You pay _____

7. **Toaster**
   15% OFF
   Reg. $49

   You save _____   You pay _____

8. **Hand-mixer**
   40% OFF
   Reg. $89

   You save _____   You pay _____

9. **Portable Grill**
   50% OFF
   Reg. $159

   You save _____   You pay _____

10. **Deep Fryer**
    10% OFF
    Reg. $110

    You save _____   You pay _____

Buying Large Appliances on Credit #13

Division, multiplication, addition

Major kitchen appliances are expensive. Some stores let customers buy appliances on credit with zero interest. This way, people can pay for their appliance over many months.

Example: Gary paid $1200 for this cooking stove. He paid for it in 24 monthly payments.

Problem: How much did he pay each month?

Solution: Divide the number of months into the total cost. $1200 ÷ 24 = $50

Gary paid $50 per month.

Directions: Find out the monthly payments for each appliance below.

1. Dan bought a fridge for $1350. He made 12 monthly payments. How much did he pay each month?

   _____

2. Betty's dishwasher cost $594. She paid for it in 18 months. How much did she pay each month?

   _____

3. Cindy paid $45 each month for 25 months for her new gas range. How much was her gas range?

   _____

4. Lisa bought a really large freezer to store all her caribou meat. She paid $28 per month for 18 months. How much was her freezer?

   _____

5. Max purchased a gas range for $889 and a dishwasher for $549. He has 25 months to pay them both off. How much does he pay each month?

   _____

6. Lucy paid $999 for her fridge and $693 for her freezer. She made monthly payments for 18 months. How much did she pay each month?

   _____

Calculating GST #14

Percents, multiplication, addition

The Northwest Territories does not have territorial sales tax but it does have the GST. The GST is a national tax that is on most things except for food. However, GST is on some food items like junk food (chips, ice cream, popsicles, pretzels, etc.). GST is 5%. When figuring out GST we must convert the 5% into a decimal .05 (move the decimal point 2 places).

Example: Cory paid $1200 for a cooking stove.

Problem: How much did he pay in GST? How much did he pay all together?

Solution: Step 1: Multiply $1200 x .05 = $60 *Cory paid $60 in GST.*

Step 2: Add $1200 + $60 = $1260 *Cory paid $1260 altogether.*

Part 1: Calculate the GST for each of the following.

1. Dan bought a fridge for $1350.	GST _____ Total Cost _____
2. Betty bought a dishwasher for $590.	GST _____ Total Cost _____
3. Max purchased a gas range for $889 and a dishwasher for $549	GST _____ Total Cost _____
4. Lucy paid $999 for her fridge and $695 for her freezer.	GST _____ Total Cost _____
5. Cindy paid $45 each month for 25 months for her new gas range.	GST _____ Total Cost _____

Part 2: Answer the questions for each receipt. Remember that GST is only on junk food items or non-essential food items. Round your answers off to the nearest cent.

6. Fill in the Subtotal, GST and Total on the grocery receipt.

There is a sale today, and everyone gets a 5% discount on all items purchased. What is the discount before GST? _____

Coop Warehouse	
4 lbs of bananas	$3.99
1 dozen corn	$4.89
2 L of milk	$2.59
1 cereal	$3.99
1 bag of chips	$2.99
1 box of popsicles	$1.89
Subtotal:	_____
GST 5%	_____
Total	_____

7. Fill in the Subtotal, GST and Total on the grocery receipt.

There is a sale today and everyone gets 10% off their purchases. What is the discount before GST? _____

The Northern Store	
4 cartons of juice	$5.89
2 loaves of bread	$6.12
4 bottles of pop	$8.89
1 package of pretzels	$3.99
1 kg of cheese	$4.69
Subtotal:	_____
GST 5%	_____
Total	_____

Shopping for the Kitchen Review #15

Mary wants to buy all new appliances for her kitchen. The chart below shows what she wants to buy and how much each item is. Round your answers off to the nearest cent.

Appliance	Cost	GST	Monthly payments for 18 months
Fridge	$1095		
Gas Range	$795		
Dishwasher	$595		
Microwave oven	$189		
Total			

1. Fill in the chart above. Calculate the GST and the monthly payments (including GST) and totals. Round your answers to the nearest cent.

2. How much will she pay for all the appliances? _____

3. How much will she pay monthly for all her appliances? _____

4. What if Mary got a discount on her fridge of 20%. How much would she pay for the fridge not including GST? _____ How much would she pay including GST? _____

5. What if Mary got a discount of 10% for buying all four items at once.

    a. What would the cost be for each item?

    _____   _____

_____   _____

b. What would the GST be for each item?

_____   _____

_____   _____

c. How much would she pay each month for each item?

_____   _____

_____   _____

d. How much would Mary pay altogether?

_____

e. How much would she pay each month altogether?

_____

6. Sam really needs to make sure he gets the best buy. One of the items on his
    shopping list is peanut butter He has three options:

> a. 1 kg for $7.99

> b. 1.5 kg for 8.90

> c. 2.5 kg for $14.50

What is the best buy for Sam? _____

7. Shelley wants to buy some bulk flour, but she is not sure which is cheaper. Flour comes in 15 kg bags for $9.99 at one store. Another store sells 3 kg bags for $3.50.

    a. What is the cost of 15 kg if Shelley buys the 3 kg bags? _____

    b. How much can Shelley save if she buys the 15 kg bag? _____

8. Alice just wants to buy one apple. Apples are on sale 4/$5. How much is one apple? _____

9. Susan is at the grocery store. As she shops, she tries to figure out how much her bill is going to be.

    a. She buys 2 kilograms of apples priced at $4.59/kg

    b. She buys 2 kg of ground hamburger. The price is $4.15/kg.

    c. She buys 3 boxes of macaroni. Each box is $1.89.

    d. She buys 18 puddings. They come 6 per package and each package is $2.39.

    e. She buys 2 litres of milk priced at $1.89/L.

    f. She buys one frozen tin of apple juice for 3/$2.99.

    g. She buys 2 dozen eggs at $3.19 per dozen.

First estimate how much you think Susan will pay for each item and the total bill.

    a. _____

    b. _____

    c. _____

      d. _____

      e. _____

      f. _____

      g. _____

      Total _____

Now calculate how much Susan pays for each item.

      a. _____

      b. _____

      c. _____

      d. _____

      e. _____

      f. _____

      g. _____

      Total _____

What is the difference? _____

Shopping for Food Projects

1. Plan a real cookout with your class or family. Make a list of foods that you want to buy and price them out at the store.

2. Make up your own shopping list for the week. Look for coupons in the paper or store flyer.

3. Do some comparison shopping if you have two stores in your community. Use the list below and find out how much each is at the store. Remember that you will need to compare foods that are the same amount or you will have to figure out the unit cost.

- Flour
- Can of orange juice
- Chicken fingers
- Bag of oatmeal
- Ketchup
- bag of oranges

- White sugar
- Carton of apple juice
- Frozen pizza
- Loaf of bread
- Mustard
- Bag of apples

- Brown sugar
- Spaghetti sauce
- Peanut butter
- Can of brown beans
- Hotdogs
- Jam

4. Research on the Internet how much it would cost to replace all your kitchen appliances. Sears Canada is a good place to look for prices. Calculate the cost of the appliances and the GST.
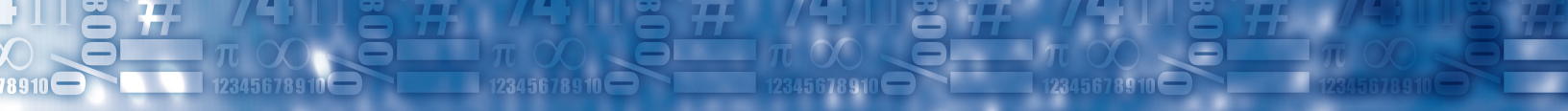
Using Measurement in the Kitchen

In this section you will be required to use a variety of math skills:

- Addition
- Subtraction
- Multiplication
- Division
- Ratios
- Metric measurement
- Metric conversions

- Fractions
  - o Addition
  - o Subtraction
  - o Multiplication
  - o Division
  - o Improper fractions
  - o Mixed numbers

This section has the following worksheets:

- Worksheet #16:   Equal Measures
- Worksheet #17:   Adjusting the Recipe
- Worksheet #18:   Adjusting More Recipes
- Worksheet #19:   Ratios in the Kitchen
- Worksheet #20:   Cooking in Batches
- Worksheet #21:   Combining Liquid Ingredients
- Worksheet #22:   Combining Dry Ingredients
- Worksheet #23:   Review of Using Measurement in the Kitchen

It also has a page for math projects on this topic.

Equal Measures #16

Multiplication, division, multiplication of fractions, comparisons

Success in the kitchen starts with correct measuring. Often recipes will call for cups, ounces or pints. To get the best results, keep in mind these equivalents.

```
3 teaspoons = 1 tablespoon
16 tablespoons = 1 cup

1 cup       =        8 ounces =   ½ pint
2 cups      =        16 ounces =  1 pint
4 cups      =        32 ounces =  1 quart
2 quarts    =        64 ounces =  ½ gallon
4 quarts    =        128 ounces = 1 gallon

1 square of chocolate      =      1 ounce
2 tablespoons of butter    =      1 ounce
1 stick of butter          =      4 ounces
```

Directions: Use the chart above to answer the questions.

1. How many squares would give you 4 ounces of chocolate?

   _____

2. Two pints of ice cream is how many ounces? _____

3. How many teaspoons would give you 3 tablespoons of baking soda?

   _____

4. How many tablespoons would give you 4 ounces of peanut butter?

   _____

5. Three quarts would give you how many cups of soup?

   _____

6. If a recipe called for 16 ounces of flour. How many cups would you use? _____

7. A recipe calls for 2 tablespoons of molasses but you only have a teaspoon. How many teaspoons would you use? _____

8. A recipe calls for 24 ounces of juice. How many cups would you use?

    _____

9. A recipe for a large batch of soup calls for ½ gallon of soup stock. How many cups would you use?

    _____

10. How many cups would give you 2 quarts of water? _____

11. A recipe calls for 1 ½ pints of water. How many cups would you use?

    _____

12. A recipe calls for 8 ounces of chocolate. How many squares of chocolate would you use?

    _____

13. Convert the following recipe.

    a. 12 ounces of flour   _____ cups of flour

    b. 8 ounces of oatmeal   _____ cups of oatmeal

    c. 1 tablespoon of baking powder   _____ teaspoons

    d. ½ tablespoon of baking soda   _____ teaspoons

    e. 4 ounces of chocolate chips   _____cups of chocolate chips

    f. 3 teaspoons of vanilla   _____tablespoon of vanilla

    g. 6 ounces of butter   _____ sticks of butter

Adjusting the Recipe #17

Improper fractions, mixed numbers, multiplication of fractions, division of fractions

Recipes usually tell you how many servings they make. But sometimes you will want to make a different number of servings. When that happens, you must adjust the amount of each ingredient in the recipe.

Example 1:   Helen wants to double a recipe for her family gathering.

Problem: A recipe calls for 2 ½ cups of flour.

Solution: 2 x 2 ½

First you must make an improper fraction. 2 ½ = 5/2

Then multiply $\dfrac{2}{1} \times \dfrac{5}{2} = \dfrac{10}{2} = 5$

Helen will need 5 cups of flour to double the recipe.

Example 2:   Pat wants to half a recipe for his family.

Problem: A recipe calls for 3 ½ cups of flour.

Solution: 3 ½ ÷ 2

First you must make an improper fraction. 3 ½ = 7/2

Then invert the second term and then multiply.

$\dfrac{7}{2} \div \left(\dfrac{2}{1}\right) \qquad \dfrac{7}{2} \times \dfrac{1}{2} = \dfrac{7}{4} = 1\dfrac{3}{4}$

Pat will need 1 ¾ cups of flour.

Look at the chart below:

Half Recipe ÷ 2	To get half the servings, you make half a recipe. Divide the amount of each ingredient by 2.
Double Recipe x 2	To get twice as many servings, you double the recipe. Multiply the amount of each ingredient by 2.

Part 1: Below are recipes for caribou stew, bannock and chocolate chip cookies. Your class is going to make a feast for 30 people. Everyone will most likely have one bowl of stew, 2 pieces of bannock and 3 cookies. Calculate how many times you will need to multiply the recipe. Round up – for example if you need to have 2 ½ times more for one recipe – round it up to 3 times more. Also calculate how much you will need for each ingredient.

Caribou Stew (makes enough for 6 people)	Multiply by how many times?	How much will you need for each ingredient?
1 ½ tablespoons of oil		
1 small onion		
2 cloves of garlic (minced)		
1 ½ lbs of caribou		
2 ½ cups of broth		
2 ½ cups of diced carrots		
2 ⅓ cups of diced celery		
3 potatoes		
½ teaspoon of salt		
Dash of pepper		

Using Measurement in the Kitchen

Bannock (makes 16 pieces)	Multiply by how many times?	How much will you need for each ingredient?
2 ½ cups of white flour		
1 ½ cups of whole wheat flour		
4 ½ teaspoons of baking powder		
1 ½ tablespoons of sugar or honey		
½ teaspoon of salt		
½ cup of vegetable lard or oil		
2 cups of water or milk		
Chocolate Chip Cookies (makes 36 cookies)	**Multiply by how many times?**	**How much will you need for each ingredient?**
2 ¼ cups all purpose flour		
1 teaspoon baking soda		
1 teaspoon salt		
1 cup of butter or margarine		
¾ cup granulated sugar		
¾ cup packed brown sugar		
1 teaspoon vanilla extract		
2 large eggs		
1 ½ cups of chocolate chips		
½ cup of chopped nuts (optional)		

Part 2: Now use the same recipes and half each one.

Caribou Stew (makes enough for 6 people)	÷ 2	How much will you need for each ingredient?
1 ½ tablespoons of oil		
1 small onion		
2 cloves of garlic (minced)		
1 ½ lbs of caribou		
2 ½ cups of broth		
2 ½ cups of diced carrots		
2 ⅓ cups of diced celery		
3 potatoes		
½ teaspoon of salt		
Dash of pepper		
Bannock (makes 16 pieces)	**÷ 2**	**How much will you need for each ingredient?**
2 ½ cups of white flour		
1 ½ cups of whole wheat flour		
4 ½ teaspoons of baking powder		
1 ½ tablespoons of sugar or honey		
½ teaspoon of salt		
½ cup of vegetable shortening or oil		
2 cups of water or milk		

Chocolate Chip Cookies (makes 36 cookies)	÷ 2	How much will you need for each ingredient?
2 ¼ cups all purpose flour		
1 teaspoon baking soda		
1 teaspoon salt		
1 cup of butter or margarine		
¾ cup granulated sugar		
¾ cup packed brown sugar		
1 teaspoon vanilla extract		
2 large eggs		
1 ½ cups of chocolate chips		
½ cup of chopped nuts (optional)		

Adjusting More Recipes #18

Multiplication of fractions, division of fractions, improper fractions, mixed numbers

Here are some more recipes. Try them out at home!

1. **Almost No Fat Banana Bread**　　　　**Makes 12 servings**
    You need to serve 48 people for a school event. Adjust the
    recipe. Everyone will have 1 piece each.
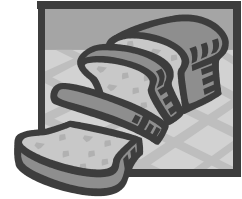
Ingredients	Multiply by ?	Adjusted for ___ pieces
1 ½ cups all-purpose flour		
¾ cup white sugar		
1 ¼ teaspoons baking powder		
½ teaspoon baking soda		
½ teaspoon ground cinnamon		
2 egg whites		
1 cup banana, mashed		
¼ cup applesauce		

Directions:

a. Preheat oven to 350 degrees F (175 degrees C). Lightly grease an 8x4 inch loaf
    pan.

b. In a large bowl, stir together flour, sugar, baking powder, baking soda and
    cinnamon. Add egg whites, bananas and applesauce; stir just until combined.
    Pour batter into prepared pan.

c. Bake in preheated oven for 50 to 55 minutes, until a toothpick inserted into center of loaf comes out clean. Turn out onto wire rack and allow to cool before slicing.

2. Apple Strudel Muffins   Makes 12 muffins

You are having 14 people for brunch and each person will eat 2 muffins. How many muffins do you need? _____ Adjust the recipe

Ingredients	Multiply by ?	Adjusted for _____ muffins
2 cups all-purpose flour		
1 teaspoon baking powder		
½ teaspoon baking soda		
½ teaspoon salt		
½ cup butter		
1 cup white sugar		
2 eggs		
1 ¼ teaspoons vanilla		
1 ½ cups chopped apples		
⅓ cup packed brown sugar		
1 tablespoon all-purpose flour		
⅛ teaspoon ground cinnamon		
1 tablespoon butter		

Directions:

a. Preheat oven to 375 degrees F (190 degrees C). Grease a 12 cup muffin pan.

b. In a medium bowl, mix flour, baking powder, baking soda and salt.

c. In a large bowl, beat together butter, sugar and eggs until smooth. Mix in vanilla. Stir in apples, and gradually blend in the flour mixture. Spoon the mixture into the prepared muffin pan.

d. In a small bowl, mix brown sugar, flour and cinnamon. Cut in butter until mixture is like coarse crumbs. Sprinkle over tops of mixture in muffin pan.

e. Bake 20 minutes in the preheated oven, or until a toothpick inserted in the center of a muffin comes out clean. Allow to sit 5 minutes before removing muffins from pan. Cool on a wire rack.

3. Fruit Punch   **Make 8 servings**

You are having a party and have 30 people coming. Adjust the recipe for 30 people.

Ingredients	Multiply by ?	Adjusted for ___ people
¾ can of orange juice concentrate		
½ can of lemonade concentrate		
¾ cup of pineapple juice		
1 ½ L of ginger ale		

Directions:

Mix fruit juices; cover and chill thoroughly in refrigerator. Add cold ginger ale just before serving. Serve fruit punch over crushed ice or freeze about half of the ginger ale in ice cube trays and add to punch with remaining ginger ale.

Ratios in the Kitchen #19

Ratios, equivalent fractions, multiplication, division

A ratio is a way of comparing two amounts. In the kitchen, ratios are often used to figure out "before and after" amounts.

Example 1:   One cup of uncooked rice will make 3 cups of cooked rice.
The ratio of uncooked to cooked is 1 to 3.
The fraction ⅓ names this ratio.

Problem: You want to make 6 cups of cooked rice. How many cups of uncooked rice should you use?

Solution: For rice, the ratio of "before" to "after" is ⅓
You know you want 6 cups "after." The equivalent ratio is

$$\frac{1}{3} = \frac{?}{6} \qquad\qquad \frac{1}{3} = \frac{2}{6}$$

Ask yourself this question. What number will make the fraction equal? What number do I have to multiply the 3 by to get to 6? (2) Therefore you must multiply the top too: 1 x 2 = 2. *You should use 2 cups of uncooked rice.*

Example 2:   One cup of dry pasta will make 2 cups of cooked pasta.

Problem: I need 10 cups of cooked pasta for our family dinner.

Solution: The ratio is 1 to 2 or ½. We want 10 cups.

$$\frac{1}{2} \underset{\text{X 5}}{=} \frac{?}{10} \qquad\qquad \frac{1}{2}^{\text{X 5}} = \frac{5}{10}$$

We need to cook 5 cups of dry pasta for 10 cups of cooked pasta.

Part 1: Make the fractions equivalent.

1. $\dfrac{1}{2} = \dfrac{?}{8}$ _____

2. $\dfrac{3}{4} = \dfrac{?}{8}$ _____

3. $\dfrac{2}{1} = \dfrac{?}{3}$ _____

4. $\dfrac{1}{5} = \dfrac{2}{?}$ _____

5. $\dfrac{3}{5} = \dfrac{?}{15}$ _____

6. $\dfrac{3}{2} = \dfrac{?}{8}$ _____

Part 2: Figure out the answers to these before-and-after questions.

7. If you squeeze 2 oranges, you will get 1 cup of juice. You want to make 6 cups for your Sunday breakfast with the family. How many oranges will you need to squeeze? _____

8. Two slices of bread will make 1 cup of bread crumbs. You want 3 cups of crumbs for your stuffing, how many slices of bread will you need? _____

9. One cup of uncooked rice will make 3 cups of cooked rice. ½ cup of cooked rice is one serving. You need to make 12 servings of rice. How much uncooked rice will you need? _____

10. The ratio for cooking rice is 1 cup of rice to 2 cups of water. If you cooked 3 cups of rice, how much water will you need? _____

11. For every cup of dry pasta that you cook, you need ½ L of water. If you cooked 4 cups of dry pasta, how much water would you need to boil?

_____

12. Lisa bought some frozen cookie dough in a big container. The instructions say that 1 cup of cookie dough will make 8 cookies. She needs to make 48 cookies. How much cookie dough will she need to thaw? _____

Cooking in Batches #20

Division and multiplication

Some foods cannot be cooked all at once. You must cook them in several batches.

Example: A recipe makes 72 cookies. You can only bake 24 cookies at a time. The cookies will bake for 8 minutes.

Problem 1:   How many batches must you make?

Solution 1:   72 ÷ 24 = 3 batches
                      You must bake 3 separate batches.

Problem 2:   How many minutes will it take to bake all the cookies?

Solution 2:   8 minutes x 3 batches = 24 minutes
                      They will take 24 minutes in all.

Directions: For each problem below, find out how many batches are needed. Then calculate how long it would take to cook them.

	Batches	Cooking Time
a. You want 8 pieces of toast. Your toaster makes 2 pieces at a time. Toast takes 3 minutes.		
b. Bannock bakes for 12 minutes. The recipe makes 32 pieces. You can only cook 16 pieces at a time.		

c. Your griddle will hold 10 tiny pancakes. The recipe makes 50. They cook for 4 minutes.		
d. The recipe makes 36 rolls. Your cookie sheet will hold 24 rolls. The rolls must bake for 15 minutes.		
e. You can only cook 12 muffins at a time. The recipe makes 24 muffins. The muffins cook for 14 minutes.		
f. A recipe makes 48 large cookies. Your cookie sheet can only hold 8 cookies at time. The cooking time is 12 minutes.		

Combining Liquid Ingredients # 21

Metric conversion, multiplication, addition

Example: Pat is making fruit punch. She combines 1000 mL (1 litre) of apple juice, 500 mL of lemonade and 1000 mL of lime soft drink.

Problem: How much punch will Pat have?

Solution: To find out, add together all the ingredients.

> 1000 mL juice
> 500 mL lemonade
> + 1000 mL soft drink
> 2500 mL

She will have 2500 mL (or 2.5 litres) of punch.

Part 1. Add to find the total amounts.

Remember that 1000 mL = 1 L

1. 250 mL + 500 mL =

   _____ mL

2. 140 mL + 160 mL =

   _____ mL

3. 500 mL + 500 mL =

   _____ L

4. 250mL + 700 mL =

   _____ mL

5. 500 mL + 1.5 L =

   _____ L

6. 1.75 L + 750 mL =

   _____ L

7. 2 L + 500 mL

   _____ L

8. 500 mL + 250 mL + 500 mL=

   _____ L

9. 300 mL + 1.5 L + 400 mL =

_____ L

10. 2.5 L + 1.5 L + 500 mL=

_____ L

Part 2. How much will they have in all?

11. Mark combines two bottles of pop. One bottle contains 350 mL and the other contains 1 L. What is the total amount of pop? _____ L

12. In making soup, Patricia adds 500 mL of cream, 750 mL of milk and 500 mL of water. How many litres does she have? _____ How many people can she feed if each person eats 250 mL of soup? _____

13. Linda wants to make punch for 10 people. Below is a recipe for punch for 5 servings. Calculate how much she will need of each ingredient and the total amount of liquid in litres.

Ingredients	Multiply by ?	Adjusted for 10 people
½ L of orange juice		
250 mL of lemonade		
500 mL of pineapple juice		
1 L of ginger ale		
	Total liquid in litres	

Combining Dry Ingredients #22

Addition of fractions, mixed numbers
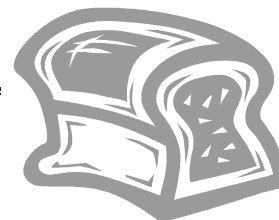
Example: Michael mixes 2 ½ cups of rye flour and 2 ½ cups of whole wheat flour to make multigrain bread.

Problem: How many cups will he have in all?

Solution: Let's add to find out.   2 ½ cups

$+$ 2 ½ cups

4 2/2 cups = 5 cups

Michael will have 5 cups of flour.

Directions: Add to find the total amounts.

1.   2 cups
    $+$ 1 ½ cups

2.   3 cups
    $+$ 1 ½ cups

3.   2 cups
    $+$ 2 ¼ cups

4.   1 ½ cups
    $+$ 1 ½ cups

5.   3 ¼ cups
    $+$ 1 ¾ cups

6.   1 ⅓ cups
    $+$ 1 ⅓ cups

7. Tina uses a ¼ cup of brown sugar and a ¾ cup of white sugar. How much sugar does she use? _____

8. Dora combines 2 ¼ cups of flour with 2 cups of oats. How many cups is that? _____

9. Joe mixes 1 ¼ cups of rotini with 1 ¼ cups of elbow pasta. How many cups in all? _____

10. Louise combines ¾ cup of wild rice and 1 ¼ cups of white rice. How much rice does she have altogether? _____

11. Anne combines ⅔ cup of white pasta and 1 ⅓ cups of whole wheat pasta. How much pasta does she have altogether? _____

12. A recipe calls for 2 ½ cups of flour. Susie would like to double the recipe. How much flour does Susie need? _____

13. Lori combines 1 ½ cups of macaroni and 1 ¾ cups of elbow macaroni to the pot. How much does she have altogether? _____ If the ratio for cooking pasta is 1 cup of dry pasta to 2 cups of cooked, how much pasta will she have when it is cooked? _____

14. Gayle combines 1 ⅓ cups of white rice with 1 ⅓ cups of brown rice. How much rice is she going to cook? _____ If the ratio is 1 cup of uncooked rice to 3 cups of cooked rice, how much rice will she have when it is cooked? _____

Using Measurement in the Kitchen
Review #23

1. How many litres is 1500 mL? _____

2. Combine 250 mL, 500 mL, 750 mL and 3 L. How many litres is this?
   _____

3. Janice combines 2 ½ cups of white flour and 1 ½ cups of whole wheat flour.
   How much flour does she use all together? _____

4. The recipe makes 72 rolls. Your cookie sheet will hold 20 rolls. The rolls must
   bake for 15 minutes. How many batches will you need to make and how long
   will it take? _____   _____

5. Make the following equivalent.

   $\dfrac{1}{2} = \dfrac{?}{4}$ _____ $\dfrac{4}{8} = \dfrac{?}{2}$ _____ $\dfrac{2}{1} = \dfrac{?}{3}$ _____

   $\dfrac{1}{6} = \dfrac{2}{?}$ _____ $\dfrac{3}{8} = \dfrac{?}{16}$ _____ $\dfrac{3}{2} = \dfrac{?}{8}$ _____

6. Use the information in the chart to answer the questions below:

   a. 6 teaspoons = _____ tablespoons

   b. 3 pints = _____ cups

   c. 8 cups = _____ quarts

   d. 1 gallon = _____ cups

   e. 3 cups = _____ ounces

   f. 2 cups = _____ tablespoons

3 teaspoons = 1 tablespoon		
16 tablespoons = 1 cup		
1 cup	=	8 ounces = ½ pint
2 cups	=	16 ounces = 1 pint
4 cups	=	32 ounces = 1 quart
2 quarts	=	64 ounces = ½ gallon
4 quarts	=	128 ounces = 1 gallon

7. Below is a recipe for baked macaroni and cheese. It serves 8 people. Adjust the following recipe to feed 15 people. Adjust it again to feed 4 people.

Recipe	Multiply by _____	Adjusted amount
300 grams of macaroni		
1 ½ cups grated cheddar cheese		
2 tablespoons flour		
½ teaspoon salt		
¼ teaspoon pepper		
2 tablespoons butter		
2 cups milk		
⅔ cup soft buttered crumbs*		
Recipe	**Divide by _____**	**Adjusted amount**
300 grams of macaroni		
1 ½ cups grated cheddar cheese		
2 tablespoons flour		
½ teaspoon salt		
¼ teaspoon pepper		
2 tablespoons butter		
2 cups milk		
⅔ cup soft buttered crumbs*		

Using Measurement in the Kitchen Projects

1. Make the macaroni and cheese recipe at home from the review page. Here are the directions.

   > Preheat oven to 350°. Cook macaroni in salted boiling water until almost soft (al dente). Drain well. Grease a large shallow casserole and place a layer of macaroni on the bottom, sprinkle with cheese, butter, flour and seasonings. Continue to layer until all ingredients are used evenly in the layers. (3 layers works well) Pour milk over all. Top with buttered bread crumbs. Bake at 350° for 40 minutes.

2. Use the caribou recipe or use your own caribou recipe and make stew for your family or classmates.

3. Create a classroom cookbook. Ask members of your class to submit a couple of recipes and then make a cookbook that can be photocopied for everyone in the class.

4. Cook at home with your children. Baking and cooking can really help your children with reading and math. It is also a great way to spend time together.

Nutrition

In this section you will be required to use a variety of math skills:

- Addition
- Subtraction
- Multiplication
- Division
- Order of operations
- Metric measurement

This section has the following worksheets:

It also has a review of the section and a page for nutrition projects.

Calories #24

Addition, Internet search, reading charts

Calories in the foods you eat supply your body with energy. To stay in good shape, different people need different amounts of calories each day.

Look at the chart below. Below are estimates for how many calories a person should eat each day.

Age	Female	Male
11 – 14 years	2300 calories	2800 calories
15 – 18 years	2300 calories	3000 calories
19 – 22 years	2000 calories	3000 calories
23 – 30 years	1800 calories	2700 calories
31 – 50 years	1700 calories	2500 calories

Part 1: Add to find the total calories in each meal.

1. toast and butter   160
   fried egg   100
   tomato juice   25
   banana   108

   Total calories   _____

2. hamburger   380
   French fries   220
   milkshake   520

   Total calories   _____

3. strawberry yogurt   140
   apple   80
   handful of almonds   100
   coffee with milk and sugar   100

   Total calories   _____

4. pork chop   140
   lima beans   75
   applesauce   90
   2% milk   120
   ice cream   250

   Total calories   _____

5. chicken salad	175	6. caribou stew	260
muffin	130	Caesar salad	300
1 tomato	30	Coke	120
2% milk	120	apple crisp	220
Total calories	_____	**Total calories**	_____

Part 2: Use your answers on the previous page to answer these questions.

7. Which meal has the highest total calories? Meal # _____

8. Which meal has the lowest total calories? Meal # _____

9. Marie is 20 years old. On Tuesday, she ate meals #1 and #4 and #6. How many calories did she consume? _____ How many calories should she eat in one day according to the chart? _____ Was she close to her target? _____

10. Joe is a 28 year old man. How many calories is he supposed to eat for his age group? _____ He ate meals #1, #2, #5 and #6. How many calories did he consume? _____ Did he eat too many or too few calories? _____ What was the difference? _____

11. Look at the chart and determine which category you are in. How many calories according to the chart are you supposed to eat each day? _____

12. Make yourself a meal plan for one day using the meals listed. Write down what meals you would eat. _____ _____ _____
_____

13. Calculate the total number of calories.

_____

14. Did it surprise you how many calories are in a milkshake? _____

15. Find the number of calories in these foods. You can find calorie counters online by using Google.

     a. 1 can of beer   _____

     b. 1 glass of wine   _____

     c. macaroni and cheese (1 serving)   _____

     d. 1 glass of orange juice   _____

     e. 1 bagel   _____

     f. 2 scrambled eggs   _____

     g. 2 pieces of bacon   _____

     h. 1 latte with milk   _____

     i. 1 bagel with cream cheese   _____

     j. 1 apple   _____

     k. vanilla ice cream cone (1 scoop)   _____

     l. 1 can of Coke   _____

     m. 1-8 oz glass of milk (2%)   _____

Part 3: Make a meal plan for you and your family. Calculate the calories for each meal and the total calories for the day. Below is an example of what your meal plan can look like.

Meal Plan:

Meal #1	Snack	Meal #2	Snack	Meal #3

More on Calories #25

Order of operations, multiplication, addition, rounding to the hundredths place

Use the information below to figure out how many calories you should be eating each day. You will need to know how much you weigh in kilograms and how tall you are in centimetres. Round your answers off to the nearest one hundredth (two decimal places).

Note: 1 foot = 12 inches   1 inch = 2.54 cm.   1 kilogram = 2.2 lbs.

The Harris-Benedict formula

The Harris-Benedict equation is a calorie formula using the factors of height, weight, age, and sex to determine basal metabolic rate (BMR). This makes it more accurate than determining calorie needs based on total bodyweight alone or just age. Follow the formulas below.

Men: BMR =   66 + (13.7 X wt in kg) + (5 X ht in cm) - (6.8 X age in years)

Women: BMR = 655+ (9.6 X wt in kg) + (1.8 X ht in cm) - (4.7 X age in years)

Example: You are a 30 year old female. You are 5' 8 " tall and you weigh 150 lbs.

Problem: How many calories should this person eat each day? In other words what is the BMR for this person?

Solution: First you must figure out the weight in kilograms and then the height in centimetres. Round your answer off the nearest calorie.

150 lbs ÷ 2.2 = **68.18 kilograms**

5' 8"= 68 inches (5 feet = 60 inches plus 8 inches)

68 inches x 2.54 = **172.72 cm**

BMR = 655 + (9.6 x **68.18 kg**) + (1.8 x **172.72**) – (4.7 x **30**)

655 + (654.53) + (310.896) – (141) = 1479.426

This person should eat 1479 calories per day

Part 1: Calculate the BMR of each person below using these formulas:

      Men: BMR =   66 + (13.7 X wt in kg) + (5 X ht in cm) - (6.8 X age in years)

      Women: BMR =   655+ (9.6 X wt in kg) + (1.8 X ht in cm) - (4.7 X age in years)

Remember: 1 foot = 12 inches   1 inch = 2.54 cm.   1 kilogram = 2.2 lbs.

1. Lisa weighs 68 kilograms and is 42 years old. She is 168 centimetres. Calculate her BMR. Round your answer to the nearest calorie.

2. Joe weighs 75 kilograms and is 48 years old. He is 185 centimetres tall. Calculate the number of calories he should be eating per day. Round your answer to the nearest calorie.

3. Susan wants to find out how many calories she should be eating a day. She is 22 years old and weighs 160 pounds. She is 5′ 5″ tall or 65 inches. Hint you must convert pounds to kilograms and inches to centimetres. Round your answer to the nearest calorie.

          160 ÷ 2.2 = 72.7 kilograms

          65 x 2.54 = 165.1 centimetres

4. Larry wants to lose some weight. First he needs to find out how many calories he needs to eat to maintain his weight. Once he finds how many calories he needs to eat he can cut back on them to lose some weight. Larry weighs 210 lbs and is 55 years old. He is 5′ 11″ tall. Round your answer to the nearest calorie.

Part 2: Now it is your turn! How many calories should you be eating each day?

Your height: _____

Your weight: _____

Your age: _____

Your Sex: _____

Remember: 1 foot = 12 inches   1 inch = 2.54 cm.   1 kilogram = 2.2 lbs.

Your calculations:

Your Body Mass Index #26

Measurement, metric conversion, imperial conversion, reading charts

In the last activity we calculated the total amount of calories you should be eating each day. In this activity we calculate your Body Mass Index (BMI). BMI is a measure of body fat based on height and weight that applies to both adult men and women.

BMI Categories:

- Underweight less than 18.5
- Normal weight equals 18.5 - 24.9
- Overweight greater than 25 - 29.9
- Obesity is over 30

Remember: 1 foot = 12 inches 1 inch = 2.54 cm. 1 kilogram = 2.2 lbs.

Example: Calculate the BMI for someone who is 6 feet 2 inches (6′ 2″) tall and weighs 230 lbs.

Solution: **Step 1:** Calculate the height in inches. 6 feet x 12 inches + 2 inches = 74 inches

Step 2: Look on the chart on the next page.   BMI is 29.5

The person has a BMI between 29 and 30 and would be considered overweight.

Directions: Use the chart on the next page to calculate the BMI and decide what BMI categories they fit into: underweight, normal weight, overweight or obese. You must convert kilograms to pounds and height to inches.

BMI Categories:

- Underweight less than 18.5
- Normal weight equals 18.5 - 24.9
- Overweight greater than 25 - 29.9
- Obesity is over 30

Remember: 1 foot = 12 inches   1 inch = 2.54 cm.   1 kg = 2.2 lbs.

	BMI	**BMI Category**
1. Height 66 inches and weight 148 lbs	_____	_____
2. Height 70 inches and 72 kg	_____	_____
3. Height 4 feet 11 inches and 175 lbs	_____	_____
4. Height 5 feet 7 inches and 60 kg	_____	_____
5. Height 72 inches and 55 kg	_____	_____
6. Height 168 cm and 73 kg	_____	_____
7. Height 65 inches and 156 lbs	_____	_____

8. Now calculate your own BMI (if you want)

_____ _____

BMI Chart

BMI (kg/m²)	19	20	21	22	23	24	25	26	27	28	29	30	35	40
Height (in.)	Weight (lb.)													
58	91	96	100	105	110	115	119	124	129	134	138	143	167	191
59	94	99	104	109	114	119	124	128	133	138	143	148	173	198
60	97	102	107	112	118	123	128	133	138	143	148	153	179	204
61	100	106	111	116	122	127	132	137	143	148	153	158	185	211
62	104	109	115	120	126	131	136	142	147	153	158	164	191	218
63	107	113	118	124	130	135	141	146	152	158	163	169	197	225
64	110	116	122	128	134	140	145	151	157	163	169	174	204	232
65	114	120	126	132	138	144	150	156	162	168	174	180	210	240
66	118	124	130	136	142	148	155	161	167	173	179	186	216	247
67	121	127	134	140	146	153	159	166	172	178	185	191	223	255
68	125	131	138	144	151	158	164	171	177	184	190	197	230	262
69	128	135	142	149	155	162	169	176	182	189	196	203	236	270
70	132	139	146	153	160	167	174	181	188	195	202	207	243	278
71	136	143	150	157	165	172	179	186	193	200	208	215	250	286
72	140	147	154	162	169	177	184	191	199	206	213	221	258	294
73	144	151	159	166	174	182	189	197	204	212	219	227	265	302
74	148	155	163	171	179	186	194	202	210	218	225	233	272	311
75	152	160	168	176	184	192	200	208	216	224	232	240	279	319
76	156	164	172	180	189	197	205	213	221	230	238	246	287	328

Nutrition Facts #27

Percent, reading charts and labels, subtraction

Many food packages have 'Nutrition Facts' labels. These labels give you information about the food inside. You can choose nutritious foods for a healthy diet if you know the facts.

Part 1: Look at this 'Nutrition Facts' label. The label is for one package of instant oatmeal. Use the facts on the label to answer the questions.

Nutrition Facts

Serving Size 1 packet 40g (40 g)

Amount Per Serving	
Calories 145	Calories from Fat 16

	% Daily Value*
Total Fat 2g	3%
Saturated Fat 0g	2%
Trans Fat	
Cholesterol 0mg	0%
Sodium 226mg	9%
Total Carbohydrate 31g	10%
Dietary Fiber 3g	12%
Sugars 14g	
Protein 3g	

Vitamin A	22%	Vitamin C	1%
Calcium	22%	Iron	22%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories	2,000	2,500
Total Fat	Less than		65g	80g
Sat Fat	Less than		20g	25g
Cholesterol	Less than		300mg	300mg
Sodium	Less than		2,400mg	2,400mg
Total Carbohydrate			300g	375g
Fiber			25g	30g

Calories per gram:
Fat 9   •   Carbohydrate 4   •   Protein 4

1. **Calories.** A package of instant oatmeal has 145 calories. If you add one cup of skim milk (50 calories) to your oatmeal, how many calories are you consuming? _____ How many calories come from fat from the oatmeal? _____

2. **Percent of Daily Values** are based on how many calories? _____

3. **Fat.** The total Percent Daily Value of fat for one day is 100 percent. One package of oatmeal gives you 3 percent of the total. What percent of the day's fat will come from other foods? _____

4. **Iron.** The total Percent Daily Value of iron for one day is 100 percent. A serving of oatmeal gives you 22 % of the total. What percent of the day's iron will come from other foods? _____

5. **Fibre.** One package of oatmeal gives you _____ percent of your daily dietary fiber.

Part 2: Look at this 'Nutrition Facts' label. It is for two pancakes with butter and syrup. Use the facts on the label to answer the questions.

6. **Calories.** There are 520 calories in two pancakes with butter and syrup. If a person only needs 2000 calories per day, roughly what percentage of your calorie intake would be used up by eating these pancakes? _____

7. **Calories.** How many calories would one pancake have? _____

8. **Fat.** How many grams of fat are in these pancakes? _____ How many are saturated? _____

9. **Cholesterol.** The total Percent Daily Value of cholesterol for one day is 100 percent. Two pancakes with syrup use 19 % of the total. What percent of the day's cholesterol will come from other foods? _____

10. At the bottom of the label it shows how many grams you need of fiber for a diet of 2000 per day. Do the pancakes provide a sufficient amount of fiber?

_____

11. What do you think is healthier: oatmeal or pancakes? _____ Why?

_____

_____

From: Nutritional data and images courtesy of www.NutritionData.com."

Nutrition Facts

Serving Size 2 cakes 232g (232 g)

Amount Per Serving

Calories 520	Calories from Fat 123
	% Daily Value*
Total Fat 14g	22%
Saturated Fat 6g	29%
Trans Fat	
Cholesterol 58mg	19%
Sodium 1104mg	46%
Total Carbohydrate 91g	30%
Dietary Fiber	0%
Sugars	
Protein 8g	

Vitamin A	6% • Vitamin C	6%
Calcium	13% • Iron	15%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories	2,000	2,500
Total Fat	Less than		65g	80g
Sat Fat	Less than		20g	25g
Cholesterol	Less than		300mg	300mg
Sodium	Less than		2,400mg	2,400mg
Total Carbohydrate			300g	375g
Fiber			25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

More on Nutrition #28

Percents, multiplication, comparison

We need certain foods and servings of certain vitamins and minerals to live a healthy life. We need fiber, protein, vitamin A, B, D, etc.

Directions: Answer the questions below about daily food requirements.

1.   A serving of cereal gives you 15% of your daily fiber requirement. What percent of your daily fiber requirement would 5 servings give you? _____

2. A serving of fish gives you 25% of your daily protein requirements and a serving of eggs gives you 10% . Which gives you more, 6 servings of eggs or 5 servings of fish? _____

3. A serving of celery gives you 15% of your daily vitamin B requirement and a serving of spinach gives you 30%. Which gives you more vitamin B, 6 servings of celery or 2 serving of spinach? _____

4. A serving of mixed vegetables gives you 20% of your daily vitamin A requirements and a serving of apples gives you 15%. Which gives you more vitamin A, 6 servings of mixed vegetables or 7 servings of apples? _____

5. A serving of apples gives you 15% of your daily vitamin A requirement. What percent of your daily vitamin A requirement would 4 servings give you? _____

Food Groups #29

Adding, reading and filling in charts

The **NWT Food Guide** tells us to eat a variety of foods from different food groups every day for health. There are four food groups.

Milk and Milk Substitutes

Children up to 11 years: 2-3 servings
Adolescents: 3-4 servings
Adults: 2 servings

Example Servings
- 1 cup of milk
- ¾ cup of yogurt
- 1 piece of cheese
- Fish head or bones

Meat, Fish, Birds and Eggs

2-3 servings per day

Example Servings
- 2-3 ounces of caribou, duck or char
- 1-2 ounces of dried fish or meat
- 2 eggs
- 1 cup of baked beans
- 4 tablespoons of peanut butter

Bannock, Bread and Cereal

5-12 servings per day

Example Servings
- 1 slice of whole wheat bread
- ½ cup of cooked macaroni
- ½ cup of oatmeal
- 1 piece of bannock

Fruit and Vegetables

5-10 servings per day

Example Servings
- ½ cup of cranberries
- 1 apple
- 1 orange
- 1 potato
- ½ cup of juice

Part 1: Read the story on the next page.

Susie's Crazy Day

Susie got up late this morning. She was in a rush to get the kids dressed, fed and out the door. She made oatmeal for the kids but didn't have a chance to eat any herself. She grabbed a bagel as she ran out the door.

At school, Susie was really busy finishing off a project about her community. She had to go to different businesses and community organizations to find out more information. She was really hungry at break time and ate an apple, a yogurt and she had a glass of juice and coffee with sugar.

At lunch she rushed home to greet her children and make lunch for them. Every day the children come home for a hot lunch. She had some left over caribou stew from last night. They each had one bowl of stew and some bannock. After walking the children back to school, Susie headed over to the learning centre.

When she arrived at the learning centre, class was already underway. She slipped into her desk after getting herself some coffee and started working on her math. She was hoping to complete her 130 level this term and start the 140 level in February, although she struggled with algebra sometimes. Finally, it was break time, and someone had brought in dried fish. She devoured two pieces and went back to work on her math.

When school was done, she headed home to get supper ready so she could get her two boys to the hockey rink by 6:00 pm. They were in a tournament this weekend. She was rushed so she made macaroni and cheese with some frozen vegetables on the side. She also enjoyed a can of diet coke at the rink.

After a long day of school, hockey and homework, Susie finally put the boys to bed and then enjoyed a big helping of ice cream!

Part 2: Compare Susie's daily diet to the NWT Food Guide. Reread Susie's story. Check off the food groups as you read. Did Susie eat enough foods from each food group?

Foods	Milk and Milk Products	Meat, etc	Bannock, Bread and Cereal	Fruit and Vegetables	Other
Total					

Yesterday I Ate # 30

Did you eat . . .   YES   NO

3 - 4 servings from the milk and milk substitutes group?   ☐   ☐

2 servings from the meat, fish, birds and eggs group?   ☐   ☐

3 - 5 servings from the bannock, bread, cereals group?   ☐   ☐

4 - 5 servings from the fruits and vegetables group?   ☐   ☐

regularly during the day?   ☐   ☐

food from at least three food groups?   ☐   ☐

different foods from each food group?   ☐   ☐

a fresh fruit or vegetable?   ☐   ☐

only nutritious snacks
(low in fat, sugar, salt/high in nutrients)?   ☐   ☐

very few extras   ☐   ☐

Give yourself two points for every **Yes.** Take two points away for every **No.** points).
Add up your total number of points (maximum 20 points).

What was your score? _____

Compare your results with others.

Fast Food # 31

Reading charts, comparison, multiplication, ratios

Part 1: Let's compare French fries from two different fast food places. We need to look at the overall calories and the amount of fat – both saturated and trans fat. Saturated fat and trans fat are not good for you – so the least is best.

Let's compare Burger King French fries to McDonald's French fries

French Fries – 117 grams	McDonald's	Burger King
Calories	370	387
Fat	19 grams	20 grams
Saturated fat	2 grams	5 grams
Trans fat	0	6 grams

1. Which French fries have the fewest calories? _____

2. What is the difference in calories? _____

3. Which French fries have the least amount of fat? _____

4. What is the difference in fat? _____

5. Which French fries have the least amount of saturated fat? _____

6. What is the different in saturated fat? _____

7. Which French fries have the least trans fat? _____

8. What is the difference? _____

9. Which French fries are better for you? _____

10. Why do you think so? _____

Part 2: Now let's compare the hamburgers at Burger King and McDonald's. The French fries were easy to compare because they had the same number of grams. However the Burger King hamburger is 121 grams and the McDonald's hamburger is 105 grams.

Hamburger	McDonald's (105 grams)	Burger King (121 grams)
Calories	265	333
Fat	10 grams	15 grams
Saturated fat	3 grams	6 grams
Trans fat	1 gram	1 grams

First we must make the amounts equal. We must compare the amounts 105 grams to 121 grams. If we divide 121 ÷ 105 = 1.15 (rounded off). This number represents how much more the Burger King hamburger is.

We can now multiply 1.15 with the McDonald's hamburger's calories, fat, saturated fat and trans fat so we can compare the numbers.

McDonald's hamburger (these numbers represent McDonald's hamburger at 333 grams)

> Calories   265 x 1.15 = 305 (rounded up to nearest calorie)
>
> Fat   10 x 1.15 = 11.5 grams
>
> Saturated fat 3 x 1.15 = 3.5 grams (rounded to nearest 10th)
>
> Trans fat   1 x 1.15 = 1.2 grams (rounded to the nearest 10th)

Hamburger	McDonald's (121 grams)	Burger King (121 grams)
Calories	305	333
Fat	11.5 grams	15 grams
Saturated fat	3.5 grams	6 grams
Trans fat	1.2 grams	1 grams

Now we can compare our results.

1. Which hamburger has the most calories? _____

2. What is the difference? _____

3. Which hamburger has the most fat? _____

4. What is the difference? _____

5. Which hamburger has the most saturated fat? _____

6. What is the difference? _____

7. Which hamburger has the most trans fat? _____

8. What is the difference? _____

9. Which hamburger is better for you? _____

10. Why do you think so? _____

Part 3: Look at the chart below and determine how to compare the McDonald's Hot Fudge Sundae to the Dairy Queen Banana Split. Round your answers to the nearest whole number.

Ice cream treats	McDonald's Hot Fudge Sundae (179 grams)	Dairy Queen Banana Split (369 grams)
Calories	333	510
Fat	11 grams	12 grams
Saturated fat	6 grams	8 grams
Trans fat	2 grams	0 grams

1. First find out how much more the Dairy Queen Banana Split is? $369 \div 179 =$ _____ (round to the nearest 2 decimals or 100th)

2. Now take this number and multiply with McDonald's Hot Fudge Sundae.

    a. Calories 333 x _____ = _____ (round to the nearest calorie)

    b. Fat   11 x _____ = _____ (round to the nearest gram)

    c. Saturated fat 6 x _____ = _____ (round to the nearest gram)

3. What is the difference in calories? _____

4. What is the difference in fat?_____

5. What is the difference in trans fat? _____

6. Now compare all the numbers. Which treat is better for you assuming you ate two of McDonald's Hot Fudge Sundaes? _____

7. Why do you think so?

_____

_____

Fast Food Vs. Traditional Food #32

Ratios, multiplication, comparisons

Directions: Let's compare a McDonald's hamburger to a piece of caribou

Hamburger	McDonald's (105 grams)	Caribou (100grams)
Calories	265	167
Fat	10 grams	4 grams
Saturated fat	3 grams	2 grams
Trans fat	1 gram	0 grams

1. First find out how much more the McDonald's hamburger is than the piece of caribou 105 ÷100 = _____

2. Now take this number and multiply the caribou nutrition facts

      a. Calories   167 x _____ = _____ (round to the nearest calorie)

      b. Fat   4 x _____ = _____(round to the first decimal point)

      c. Saturated fat 2 x _____ = _____ (round to the first decimal point)

3. Which has more calories? _____

4. What is the difference in calories?_____

5. Which has more fat? _____

6. What is the difference in fat?_____

7. Which has more saturated fat? _____

8. What is the difference in saturated fat?_____

9. Which has more trans fat? _____

10. What is the difference in trans fat? _____

11. Now compare all the numbers. Which do you think is better for you?

_____

12. Why do you think so?

_____

_____

Nutrition Review #33

1. An apple has 70 calories. A donut has 185. How many calories in both?
    _____

2. For breakfast you had 2 scrambled eggs, 2 pieces of toast and a glass of orange juice.
    The total amount of calories for your breakfast was 360. You are supposed to eat
    2000 per day. How many calories will come from other foods? _____

3. A jelly bean has 9 calories.   How many calories are in 8 jelly beans?
    _____

4. Jane ate 1 banana, 1 orange and ½ cup of apple juice. How many servings of fruit
    did she eat? _____ How many should she eat for one day?
    _____

5. One hamburger patty is about 320 calories. The bun is 120 calories and the
    condiments are 50 calories. How many calories are in 1 hamburger?
    _____

6. Use the chart on page 71 and calculate the BMI for the following:

    a. Height 65 inches and weight 135 lbs.   _____

    b. Height 70 inches and weight 185 lbs   _____

    c. Height 73 inches and weight 215 lbs   _____

7. Compare a salad from McDonald's that was 103 grams and 138 calories and a salad
    from Burger King that was 118 grams and 150 calories. Which salad has more
    calories per gram? _____

Nutrition Math Projects

Nutrition is an important part of our everyday life. Here are some projects on nutrition that you might think about doing on your own or with your class.

1. Develop a week-long meal plan that is nutritionally balanced for you or for your family. Use the NWT Food Guide as a guide for planning your meals. You can download a copy of the NWT Food Guide from http://www.hlthss.gov.nt.ca/pdf/brochures_and_fact_sheets/healthy_eating_and_active_living/2005/english/nwt_food_guide.pdf

2. Team up with the Community Health Representative in your community and develop a workshop on calorie intake and BMI. Offer the workshop to children and teens at the local school. You can ask them to figure out how many calories they should be eating and hand out the BMI chart.

3. Make a poster for the community on calorie intake and BMI. Put it up around town for people to read.

4. Keep a food diary of all the food you eat in one week including quantity. Research on the Internet how many calories are in each food that you ate. Calculate how many calories you ate in one week and compare it to how many calories you should be eating.

5. Compare nutrition food labels and make a list of what foods are better to eat. For example you could compare two different kinds of pizzas from the local store. Compare the calories, fat and fiber. Give a presentation to your class on which foods are better than others.

Answer Key

The Food Budget #1

1) $26   2) $539, $161   3) $78.65   4) $13

The Shopping List #2

Jill's List	$ Each	Cost
2 orange juice	2 X $2.19	$4.38
2 spaghetti noodles	2 X 2$.99	$5.98
6 pork chops	3 X $4.98	$14.94
12 yogurt	12 X $.99	$11.88
	Total	$37.18
Joe's List	**$ Each**	**Cost**
1 parmesan cheese	$7.89	$7.89
2 ice cream	2 X $5.79	$11.58
2 loaves of bread	2 X $3.49	$6.98
8 chicken breasts	2 X $11.98	$23.96
	Total	$50.41
Mike's List	**$ Each**	**Cost**
1 olive oil	$9.59	$9.59
3 frozen pizzas	3 X $12.99	$38.97
4 pork chops	2 X $4.98	$9.96
2 spaghetti noodles	2 X $2.99	$5.98
	Total	$64.50
Mary's List	**$ Each**	**Cost**
2 low fat milk	2 X $4.99	$9.98
3 litres of ice cream	3 X $5.79	$17.37
2 chicken breasts	$11.98 ÷ 2	$5.99
3 packages of cheese slices	3 X $8.95	$26.85
	Total	$60.19

More on Shopping Lists#3

Quantity of Grocery Item	Price	Total	Running Total
3 kg of tomatoes	$3.89/pound	$7.78	$7.78
2 kg of oranges	$5.99/kg	$11.98	$19.76
½ kg of cheese	$7.88/kg	$3.94	$23.70
3 dozen eggs	$2.69/dozen	$8.07	$31.77
2 kg of grapes	$4.89/lb	$9.78	$41.55
2 L of milk	$2.49/L	$4.98	$46.53
3 loaves of bread	$3.79/loaf	$11.37	$57.90
4 kg of bananas	$1.99/kg	$7.96	$65.86

What was the total amount spent on shopping? $65.86

How much money will be left over, or how much more money is needed? 86¢

Does Jack have enough money? No

Estimating Your Groceries #4

Item on list	Price per unit	Your estimate	Estimate running total
3 kg of ground beef	$2.69/kg	$9.00	$9.00
3 kg of chicken	$3.99/kg	$12.00	$21.00
5 carton of juice	$2.28/carton	$10.00	$31.00
2 kg of bananas	$.99/kg	$2.00	$33.00
2 packages of butter	$3.29/package	$6.00	$39.00
3 dozen(12) eggs	$2.59/doz	$9.00	$48.00
5 kg of potatoes	$1.19/kg	$5.00	$53.00
2 packages of carrots	$3.19/package	$6.00	$59.00

Calculate the total without estimating: $60.10

What is the difference between the actual and the estimate? $1.10

Item on list	Price per unit	Your estimate	Estimate running total
5 loaves of bread	$3.05/loaf	$15.00	$15.00
2 kg of apples	$3.99/kg	$8.00	$23.00
3 boxes of cereal	$3.89/box	$12.00	$35.00
4 cans of beans	$1.29/can	$4.00	$39.00
5 cans of pizza sauce	$.89/can	$5.00	$44.00
4 boxes of macaroni and cheese	$1.79/box	$8.00	$52.00
4 L of milk	$2.69/2L	$12.00	$64.00
2 kg of cheese	$4.78/kg	$10.00	$74.00

Calculate the total without estimating. $<u>71.99</u>

What is the difference between the actual and the estimate? $<u>2.01</u>

Using Coupons #5

1) 75¢   2) No   3) No – expires March 31st   4) No - limit 2 per person

5) 84¢   6) $1.68   7) $3.99   8) No   9) Yes,

$3.99   10) No – expires May 20th   11) No, limit 4 per person

12) $3.99   13) $7.98

Planning for Snacks for an Event #6

Answers will vary.

Planning a Cookout #7

For each person	For 22 people?	How many to buy?
3 cookies	66 cookies	5 packages
2 hot dogs	44 hot dogs	4 packages
2 buns	44 buns	6 pacakges
1 juice box	22 boxes	4 packages
2 slices of dried caribou	44 slices	5 bags
4 marshmallows	88 marshmallows	2 packages

For each person	For 40 people?	How many to buy?
2 cookies	80 cookies	5 packages
2 hot dogs	80 hot dogs	7 packages
2 buns	80 buns	10 packages
1 juice box	40 boxes	7 packages
2 slices of dried caribou	80 slices	8 bags
5 marshmallows	200 marshmallows	5 packages

How Much for One #8

1) 20¢   2) 25¢   3) 25¢   4) 60¢   5) 66¢   6) 47¢

7) 96¢   8) 50¢   9) 49¢   10) 54¢

Buying Fresh Produce #9

1) $6.76	2) $4.35	3) $6.26	4) $6.36	5) $7.58	6) $8.03
7) $11.91	8) $4.20	9) $4.87	10) $3.83	11) $6.57	12) $7.25
13) $28.38	14) $9.95	15 a) $3.96	15 b) $2.45	15 c) $4.10	15 d) $10.95
15 e) $14.67	15 f) $4.82	15 g) $4.36	15 h) $7.18		

What is a Better Deal #10

1 a) 65¢	b) 73¢	Better buy (a)
2 a) 66¢	b) 65¢	Better buy (b)
3 a) $3.33	b) $3.00	Better buy (b)
4 a) $7.76	b) $5.59	Better buy (b)
5 a) $7.96	b) $5.99	Better buy (b)
6 a) $3.96	b) $4.99	Better buy (a)
7 a) $8.99	b) $6.60	c) $6.70 Best buy (b)

Buying Large Quantities #11

1 a) done for you	b) $14.61	c) $21.01
2 a) $8.58	b) $1.69	
3 a) $22.50	b) $14.51	
4 a) 6	b) $13.74	c) $4.75
5 a) 4	b) $7.96	c) $1.97

Sale Items #12

1) You save $18.90	You pay $170.10
2) You save $14.75	You pay $44.25
3) You save $20.70	You pay $48.30
4) You save $25.80	You pay $103.20
5) You save $90.65	You pay $168.35
6) You save $24.75	You pay $74.25
7) You save $7.35	You pay $41.65
8) You save $35.60	You pay $53.40
9) You save $79.50	You pay $79.50
10) You save $11.00	You pay $99.00

Buying Large Appliances on Credit #13

1) Dan paid $112.50 per month.

2) Betty paid $33.00 per month.

3) Cindy's gas range was $1125.

4) Lisa paid $504 for her freezer.

5) Max paid $57.52 per month.

6) Lucy paid $94.00 per month.

Calculating GST

1) GST: $67.50   Total Cost: $1417.50

2) GST: $29.50   Total Cost: $619.50

3) GST: $$71.90   Total Cost: $1509.90

4) GST: $84.70   Total Cost: $1778.70

5) GST: $56.25   Total Cost: $1181.25

6) Subtotal: $20.34   GST: $.24   Total: $20.58   Discount of 5%: $1.02

7) Subtotal:$29.58   GST: $.64   Total: $30.22   Discount of 10%: $2.96

Shopping for the Kitchen Review #15

1). Fridge	$1095.00	GST: $54.75	Monthly payments: $63.88
Gas Range	$795.00	GST: $39.75	Monthly payments: $46.38
Dishwasher	$595.00	GST: $29.75	Monthly payments: $34.71
Microwave Oven	$189.00	GST: $9.45	Monthly payments: $11.03
Total	$2674.00	GST: $133.70	Monthly payments: $155.98

2) $2807.70

3) $156 (depending on how you calculated)

4) $876 $919.80

5a) $985.5 $715.50 $535.50 $170.10

5 b) $49.28 $35.78 $26.78 $8.51

5 c) $57.49 $41.74 $31.24 $9.92

5 d) $2526.96

5 e) $140.39

6 a) 7.99   b) $5.93   c) $5.80   Best buy (c)

7 a) $17.50   b) $7.51

8 a) $1.25

9) Estimation a) $10.00   b) $8.00   c) $6.00   d)$6.00   e) $4.00

        f) $1.00   g) $6.00   Total: $42.00

   Actual   a) $9.18   b) $8.30   c) $5.67   d) $7.17   e) $3.78

        f) $1.00   g) 6.38   Total: $41.48   Difference: 48¢

Your estimation numbers may be different.

Equal Measures #16

1) 4 squares	2) 32 ounces	3) 9 teaspoons	4) 8 tablespoons
5) 12 cups	6) 2 cups	7) 6 teaspoons	8) 3 cups
9) 8 cups	10) 8 cups	11) 3 cups	12) 8 squares
13 a) 1 ½ cups	b) 1 cup	c) 3 teaspoons	d) 1 ½ teaspoons
e) ½ cup	f) 1 tablespoon	g) 1 ½ stick of butter	

Adjusting the Recipe #17

Part 1

Caribou Stew (makes enough for 6 people)	Multiply by 5?	How much will you need for each ingredient?
1 ½ tablespoons of oil	5	7 ½ tablespoons
1 small onion	5	5 small onions
2 cloves of garlic (minced)	5	10 cloves
1 ½ lbs of caribou	5	7 ½ lbs
2 ½ cups of broth	5	12 ½ cups
2 ½ cups of diced carrots	5	12 ½ cups
2 1/3 cups of diced celery	5	11 ⅔ cups
3 potatoes	5	15 potatoes
½ teaspoon of salt	5	2 ½ teaspoons
Dash of pepper	5	5 dashes
Bannock (makes 16 pieces)	Multiply by 4?	How much will you need for each ingredient?
2 ½ cups of white flour	4	10 cups
1 ½ cups of whole wheat flour	4	6 cups
4 ½ teaspoons of baking powder	4	18 teaspoons
1 ½ tablespoons of sugar or honey	4	6 tablespoons

½ teaspoon of salt	4	2 teaspoons
½ cup of vegetable lard or oil	4	2 cups
2 cups of water or milk	4	8 cups
Chocolate Chip Cookies (makes 36 cookies)	**Multiply by 3?**	**How much will you need for each ingredient?**
2 ¼ cups all purpose flour	3	6 ¾ cups
1 teaspoon baking soda	3	3 teaspoons
1 teaspoon salt	3	3 teaspoons
1 cup of butter or margarine	3	3 cups
¾ cup granulated sugar	3	2 ¼ cups
¾ cup packed brown sugar	3	2 ¼ cups
1 teaspoon vanilla extract	3	3 teaspoons
2 eggs	3	6 eggs
1 ½ cups of chocolate chips	3	4 ½ cups
½ cup of chopped nuts (optional)	3	1 ½ cups

Part 2: Now use the same recipes and half each one.

Caribou Stew (makes enough for 6 people)	**÷ 2**	**How much will you need for each ingredient?**
1 ½ tablespoons of oil		¾ tablespoon
1 small onion		½ small onion
2 cloves of garlic (minced)		1 clove
1 ½ lbs of caribou		¾ lbs
2 ½ cups of broth		1 ¼ cups
2 ½ cups of diced carrots		1 ¼ cups
2 1/3 cups of diced celery		1 1/6 cups
3 potatoes		1 ½ potatoes
½ teaspoon of salt		¼ teaspoon
Dash of pepper		½ dash
Bannock (makes 16 pieces)	**÷ 2**	**How much will you need for each ingredient?**
2 ½ cups of white flour		1 ¼ cups
1 ½ cups of whole wheat flour		¾ cup
4 ½ teaspoons of baking powder		2 ¼ teaspoons

1 ½ tablespoons of sugar or honey		¾ tablespoon
½ teaspoon of salt		¼ teaspoon
½ cup of vegetable lard or oil		¼ cup
2 cups of water or milk		1 cup
Chocolate Chip Cookies (makes 36 cookies)	**÷ 2**	**How much will you need for each ingredient?**
2 ¼ cups all purpose flour		1 ⅛ cups
1 teaspoon baking soda		½ teaspoon
1 teaspoon salt		½ teaspoon
1 cup of butter or margarine		½ cup
¾ cup granulated sugar		⅜ cup
¾ cup packed brown sugar		⅜ cup
1 teaspoon vanilla extract		½ teaspoon
2 eggs		1 egg
1 ½ cups of chocolate chips		¾ cup
½ cup of chopped nuts (optional)		¼ cup

Adjusting the Recipe #18

1. Almost No Fat Banana Bread   Makes 12 servings   Need 48 servings

Ingredients	Multiply by 4	Adjusted for 48 pieces
1 1/2 cups all-purpose flour	4	6 cups
3/4 cup white sugar	4	3 cups
1 1/4 teaspoons baking powder	4	5 teaspoons
1/2 teaspoon baking soda	4	2 teaspoons
1/2 teaspoon ground cinnamon	4	2 teaspoons
2 egg whites	4	8 egg whites
1 cup banana, mashed	4	4 cups
1/4 cup applesauce	4	6 cups

1. Apple Strudel Muffins   Makes 12 muffins   Need 14 muffins

Ingredients	Multiply by 2	Adjusted for 24 muffins
2 cups all-purpose flour	3	6 cups
1 teaspoon baking powder	3	3 teaspoons
1/2 teaspoon baking soda	3	1 ½ teaspoon

1/2 teaspoon salt	3	1 ½ teaspoon
1/2 cup butter	3	1 ½ cup
1 cup white sugar	3	3 cups
2 eggs	3	6 eggs
1 1/4 teaspoons vanilla	3	3 ¾ teaspoons
1 1/2 cups chopped apples	3	4 ½ cups
1/3 cup packed brown sugar	3	1 cup
1 tablespoon all-purpose flour	3	2 tablespoons
⅛ teaspoon ground cinnamon	3	⅜ teaspoon
1 tablespoon butter	3	3 tablespoons

2. Fruit Punch   Make 8 servings   Need 30 servings

Ingredients	Multiply by 4	Adjusted for 32 people
¾ can of orange juice concentrate	4	3 cans
½ can of lemonade concentrate	4	2 cans
¾ cup of pineapple juice	4	3 cups
1 ½ L of ginger ale	4	6 L

Ratios in the Kitchen # 19

1) 4/8	2) 6/8	3) 6/3	4) 2/10	5) 9/15
6) 12/8	7) 12 oranges	8) 6 slices of bread	9) 2 cups	10) 6 cups
11) 2 L	12) 6 cups			

Cooking in Batches #20

1 a)   4 batches   12 minutes

  b)   2 batches   24 minutes

  c)   5 batches   20 minutes

  d)   2 batches   30 minutes

  e)   2 batches   28 minutes

  f)   6 batches   72 minutes or 1 hour and 12 minutes

Combining Liquid Ingredients #21

1) 750 mL	2) 300 mL	3) 1 L	4) 950 mL
5) 2 L	6) 2.5 L or 2 ½ L	7) 2.5 L or 2 ½ L	8) 1.25 L or 1 ¼ L

95

9) 2.2 L or 2 ⅕ L   10) 4.5 L or 4 ½ L   11) 1.35 L   12) 1.75 L and 7 people

13) Multiply by 2   1 L of orange juice, 500 mL of lemonade, 1 L of pineapple juice, 2 L

gingerale   Total liquid: 4.5 L or 4 ½ L

Combining Dry Ingredients #22

1) 3 ½ cups   2) 4 ½ cups   3) 4 ¼ cups   4) 3 cups

5) 5 cups   6) 2 ⅔ cups   7) 1 cup   8) 4 ¼ cups

9) 2 ½ cups   10) 2 cups   11) 2 cups   12) 5 cups

13) 3 ¼ cups, 6 ½ cups   14) 2 ⅔ cups, 8 cups

Using Measure in the Kitchen Review #23

1) 1.5 L or 1 ½ L   2) 4.5 L or 4 ½ L   3) 4 cups   4) 4 batches and 1 hour

5) 2/4   1/2   6/3   2/12   6/16   12/8

6a) 2 tablespoons   6b) 6 cups   6c) 2 quarts   6d) 16 cups

6e) 24 ounces   6f) 32 tablespoons

2

Recipe	Multiply by 2	Adjusted for 15
300 grams of macaroni	2	600 grams
1 1/2 cups grated cheddar cheese	2	3 cups
2 tablespoons flour	2	4 tablespoons
1/2 teaspoon salt	2	1 teaspoon
1/4 teaspoon pepper	2	½ teaspoon
2 tablespoons butter	2	4 tablespoons
2 cups milk	2	4 cups
2/3 cup soft buttered crumbs*	2	1 ⅓ cups
Recipe	Divide by 2	Adjusted for 4
300 grams of macaroni	2	150 grams
1 1/2 cups grated cheddar cheese	2	¾ cups
2 tablespoons flour	2	1 tablespoon
1/2 teaspoon salt	2	¼ teaspoon
1/4 teaspoon pepper	2	⅛ teaspoon
2 tablespoons butter	2	1 tablespoon
2 cups milk	2	1 cup
2/3 cup soft buttered crumbs*	2	⅓ cup

Calories #24

Part 1 - 2

1) 393   2) 1120   3) 420   4) 675   5) 455   6) 900

7) #2   8) #1   9) 1968, 2000, Yes

10) 2700, 2868, too many, 168   11 – 15) answers will vary

Part 3 – answers will vary

More on Calories #25

Part 1

1) 1413   2) 1692   3) 1547   4) 1924

Part 2 – answers will vary

Your Body Mass Index #26

1)   24   Normal

2)   Between 22 and 23   Normal

3)   Just over 35   Obese

4)   Between 20 - 21   Normal

5)   Under 19   underweight

6)   Almost 26   overweight

7)   26   overweight

8)   Answers will vary

Nutrition Facts # 27

1) 195, 16   2) 2000   3) 97%

4) 78%   5) 12%   6) 26%

7) 260   8) 14 g, 6 g   9) 81%

10) No   11) oatmeal because it has fewer calories, less fat and more fiber

More on Nutrition #28

1) 75%   2) 5 servings of fish   3) 6 servings of celery

4) 6 servings of mixed vegetables   5) 60%

Food Groups #29

Foods	Milk and Milk Products	Meat, etc	Bannock, Bread and Cereal	Fruit and Vegetables	Other
Bagel			✓✓		
Apple				✓	
Yogurt	✓				
Juice				✓✓	
2 coffee with sugar					✓✓
Caribou stew		✓		✓	
Bannock			✓		
Dried fish		✓✓			
Macaroni and cheese	✓✓		✓		
Frozen vegetables				✓	
Coke					✓
Ice cream	✓				
Total	4	3	4	5	3

*Your answers may vary slightly. The macaroni and cheese is two servings because of the amount of milk and the amount of cheese in the dish.

Fast Food #31

Part 1

1) McDonald's 2) 17 calories 3) McDonald's 4) 1 gram
5) McDonald's 6) 3 grams 7) McDonald's 8) 6 grams
9) McDonald's
10) Fewer calories and less fat

Part 2

1) Burger King 2) 28 calories 3) Burger King 4) 3.5 grams
5) Burger King 6) 2.5 grams 7) McDonald's 8) 0.2 grams
9) McDonald's
10) Fewer calories and overall less fat

Part 3.

1) 2.06

2) 333 x 2.06 = 686 (rounded to nearest calorie)

   11 x 2.06 = 23 grams

   6 x 2.06 = 12 grams

3) 176 calories   4) 11 grams   5) 4 grams

6) Dairy Queen Banana Split

7) It has less calories and fat.

Fast Food Vs. Traditional Food #32

1) 1.05

2) 167 x 1.05 = 175 (rounded to nearest calorie)

   4 x 1.05 = 4.2 grams

   2 x 1.05 = 2.1 grams

3) McDonald's hamburger   4) 90 calories

5) McDonald's hamburger   6) 5.8 grams

7) McDonald's hamburger   8) 0.9 grams

9) McDonald's hamburger   10) 1

11) Caribou   12) The caribou has fewer calories and less fat.

Nutrition Review #33

1) 255 calories   2) 1640 calories   3) 72 calories

4) 3, 5-10 servings   5) 490 calories

6a) between 22 - 23   6b) between 26 - 27   6c) between 28 - 29

7) The McDonald's salad has more calories per gram.