

Math 9 - Finance Unit



Financial Portfolio

Object: Create a financial portfolio showing a monthly budget according to a profession that you will be given. You will be given a real Yukon salary and will use this to budget your spending.

Learning Intentions:

I will understand:

- Banking
- Simple interest
- Savings
- Planned purchases (a car and weekly food shop)
- How to make a budget

How to start your portfolio:

1. You get to choose one of three paths:
 - a) High School Graduation
 - b) Trade School/College vocational/apprenticeship
 - c) University
2. On each of the Career slips there will be:
 - a) Monthly income
 - b) Job title
 - c) Starting amount of Debt and Savings
3. Choose wisely! Sometimes the highest salary isn't the best option.
4. Once you have a job and salary you will complete a financial portfolio showing how you budget your earnings.



Information Sheet - Starting

Name: _____

Career: _____

Annual **Gross** Salary (given on slip): _____

Annual Gross Salary

÷12

= Monthly Gross Salary

Annual **Net** Salary (given on slip): _____

Annual Net Salary

÷12

= Monthly Net Salary

Starting Savings (given): _____

Starting Debt: _____

What I predict will happen:

SPENDING HABITS

An exploration of our personal money style — how we think about and spend money.

If someone gave me \$100, I would _____

It is okay to put off paying a loan or bill if _____

When it comes to money, I am _____

I enjoy spending money on _____

When I am feeling good, I _____

When I am feeling down, I _____

I try to save money by _____

If I don't have the money to buy something I really want, I _____

I delay buying something if _____

My best recent purchase was _____

It was an excellent buy because _____

My worst recent purchase was _____

It was the worst buy because _____

I take things back to the store when _____

Compared to my friends, my spending is _____

I tend to spend too much money on _____

I discuss and plan money matters with _____

When I need to, I borrow money from _____

I borrow money to be able to _____

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What are the things you would like to be able to have in your life? What are the things that you need to have?

Needs	Wants

Financial literacy vocabulary

<i>Gross Pay</i>	
<i>Net Pay</i>	
<i>Deductions</i>	<i>CPP</i> <i>EI</i> <i>Income Tax</i>
<i>Pay period</i>	
<i>Pay stub</i>	
<i>Pension</i>	
<i>Salary</i>	
<i>Wage</i>	

COMPANY NAME

CHEQUE NO. 0000000

NAME - EMPLOYEE NUMBER

FOR PAY PERIOD MM/DD/YY - MM/DD/YY

DESCRIPTION	QUANTITY	RATE	CURRENT	YEAR TO DATE	DESCRIPTION	CURRENT	YEAR TO DATE
EARNINGS & HOURS					DEDUCTIONS		
HOURLY	35hrs @ \$12.00 per hour =		\$ <input type="text"/>	\$ 1,680.00	INCOME TAX	\$ -50.40	\$ -201.60
VACATION PAY AT 4%			\$ 16.80	\$ 67.20	CANADA PENSION PLAN	\$ -21.62	\$ -86.48
					EMPLOYMENT INSURANCE	\$ -7.56	\$ -30.24
					TOTAL	\$ <input type="text"/>	\$ <input type="text"/>
					SUMMARY		
					EARNINGS	\$ <input type="text"/>	\$ 1,680.00
					VACATION PAY	\$ 16.80	\$ 67.20
					DEDUCTIONS	\$ <input type="text"/>	\$ <input type="text"/>
					NET PAY	\$ <input type="text"/>	\$ <input type="text"/>

Fixed Expenses – Suggested Monthly Payments

All payment amounts are based on a percentage of your monthly income AFTER taxes.



To figure out a ballpark number for what we should be spending on different things, it's useful to think about expenses as a percentage or proportion of our income. These are suggested expenses listed below. Fill in the chart with info from YOUR job. **YOUR Monthly Net Income** = _____.

For example, if my net monthly income is 2000, and I wanted to find out how much money to spend on rent/mortgage, I would go: $\$2000 \times 0.28 = \560 . If I follow the suggested amount for how much money to spend on my house, I wouldn't spend more than \$560 on my rent or mortgage.

Category	Expenses	Suggested percent %	Decimal	<input type="text"/>	Net Monthly Income	<input type="text"/>	Total Money to spend
Home	Rent/Mortgage	28	0.28				=
	Heat	2	0.02				=
	Misc. Home	2	0.02				=
Groceries	Food	5-15	0.05 – 0.15				=
	Personal Care	1.2	0.012				=
Transportation	Vehicle	9	0.09				=
	Gas	3.3	0.033				=
	Other	6	0.06				=
Needs	General	5	0.05				=
Debt	Repayment	10	0.10				=
Savings	Savings for future	20	0.20				=

Car Buying

Find an advertisement for a car that you'd like to own. Based on the car/truck you select, complete the following categories.

YOU DON'T NEED TO END UP BUYING THIS CAR FOR THE GAME- BUT PLEASE SHOW ME YOU KNOW HOW A CAR LOAN WORKS. Check out our website for additional info.

You can use the following link to find out about the financial costs:

<https://www.cibc.com/ca/loans/calculators/car-loan-calculator.html>

	ALL - Car #1	SOME - Car #2	FEW - Car #3
Make/Model			
Year			
Invoice Price			
Down Payment			
Interest Rate (7.5%)			
Amount of Interest Total			
Amount of months to pay off			
Total Amount to pay off			
Monthly payment			
Will you buy this car? Please explain.			

Transactions

- There are different methods of paying for things that we buy. We can pay by cash (or cheque), buy on terms, or use a credit card. The smart and wise shopper will try to get a discount whenever possible when comparing prices at different stores.
- Here are some advantages and disadvantages of the different methods of buying or using money to buy something.

<u>Paying with cash</u>	An immediate payment with a debit card or cheque or real cash.
Advantage	Money is accepted anywhere. You can get a discount, cuts down on impulse buying.
Disadvantage	Carrying large sums of money is unsafe. You may miss out on a sale item if you don't have the cash.

<u>Using a credit card</u>	Buy now pay later, a safe and acceptable way to buy.
Advantage	Convenient and safe. No charges if the bill is paid on time.
Disadvantage	Impulse buying, can overspend, interest charges may apply

<u>Buying on terms</u>	A method of getting an item now and spreading the payments over time.
Advantage	Can use item while making payments, like buying a house rather than renting.
Disadvantage	Need a regular income, item may be repossessed, usually there are higher interest charges.

Buying on Credit

- A lot of people need *big ticket* items when they are starting out, such as T.V.'s, stereos, appliances, cars, tools, etc. and they would like to "buy now and pay later." You can make use of "credit" by borrowing from parents, friends, or banks. Credit can be obtained through charge accounts or installment purchases. But credit costs money. **It costs money to borrow money.**

Example 1 Suppose you buy a T.V. for \$400 on credit. You agree to pay \$36 each month for 12 months. What is the cost of this credit?

Solution: Find total amount of payments = $\$36 \times 12 = \432
Cost of credit = Total payments - amount borrowed
= $\$432 - \$400 = \$32$
Therefore cost of credit is \$32.

1. Find the cost of credit for each amount borrowed.

	Amount Borrowed	# of Payments	Monthly Payment	Cost of Credit
a.	\$400	14	\$31	
b.	\$2000	24	\$90	
c.	\$1456	36	\$45	

- In general the more you borrow, the more the credit will cost. Also, the longer you have to pay off the amount borrowed, the more the credit will cost. Most stores ask for a down payment on the article that you are buying. (Generally speaking, in Canada the dollar cost of credit, the financial charges, and the true annual percentage rate must be stated on all installment contracts).

Example 2 If you buy a Fridge for \$1298 and have a down payment of \$200 with 12 payments of \$100 each, then what is the credit cost?

Solution: Amount borrowed = Purchase price – Down payment
 $= \$1298 - \$200 = \$1098$
 Cost of credit = $\$100 \times 12 - \1098
 $= \$1200 - \$1098 = \$102$
 The cost of borrowing is \$102.

2. Find the cost of credit for each amount borrowed with the specified down payment:

	Cost of Item	Down Payment	Amount Borrowed	# of Payments	Monthly Payment	Cost of Credit
a.	\$325	\$75		12	\$25	
b.	\$860	\$100		18	\$50	
c.	\$1750	\$300		24	\$75	

- Besides the dollar cost of credit that is made on any installment purchase you should also know the "annual percentage rate". In other words the percent of yearly interest you must pay for the credit. The following formula can be used to find the true annual interest rate for a monthly plan.

$$R = \frac{24C}{B(n+1)} \times 100 \text{ where } R = \text{Annual percentage rate}$$

C = Credit cost
 B = Amount borrowed
 n = Number of payments

Example 3 What is the annual percentage rate if a \$400 camera is bought on credit with 18 monthly payments and the credit cost is \$57?

Solution: $R = \frac{24C}{B(n+1)} \times 100$
 $= \frac{24 \times 57}{400(18+1)} \times 100$
 $R = 18\%$
 The annual percentage rate is 18%

3. Find the annual percentage rate for the following:

Amount Borrowed # of Payments Cost of Credit Rate

a. \$300 12 \$26

b. \$800 24 \$98

c. \$1300 18 \$215






Choosing a SAVINGS account

Choosing a bank account can be a tricky process. Today you will need to choose:

- A bank
- A savings account

You will research to learn which bank will give you the best return on your investment. You will need to go to each banks website to research. ALL of you will do 3. MOST of you will do 4. FEW will do 5.

Your money to be invested (from page 6) _____. You will be investing your savings until the end of grade 12 (3 years).

					
Name of account					
Monthly fee					
Interest rate					
Fees per month.	_____ x 36 = _____	_____ x 36 = _____	_____ x 36 = _____	_____ x 36 = _____	_____ x 36 = _____
Your interest	$t =$	$t =$	$t =$	$t =$	$t =$
$P =$	$I = p \times r \times t$	$I = prt$	$I = prt$	$I = prt$	$I = prt$
$R =$	=	=	=	=	=
Your savings	$Savings = P + I$ =	$Savings = P + I$ =	$Savings = P + I$ =	$Savings = P + I$ =	$Savings = P + I$ =
TOTAL	= Savings – fees = =	= Savings – fees = =	= Savings – fees = =	= Savings – fees = =	= Savings – fees = =

I choose to invest my savings with _____ bank, because _____

- Interest is money that is paid for the use of your money. If money is borrowed, interest has to be paid to the lender, either an institution like a bank, credit union or an individual. If money is saved in a savings account, interest is paid to the holder of the account for the use of it by the bank.

The formula to calculate "simple interest" is given by:

$I = P \times R \times T$ where I = amount of interest

P = principal (amount borrowed or lent)

R = rate of interest per year

T = time in years

Example 1 Find the simple interest on \$3000 invested for 2 years @ a rate of 6%

Solution: $I = P \times R \times T$

$$= 3000 \times 6\% \times 2$$

$$= 3000 \times .06 \times 2 = \$300$$

The simple interest is \$300.

Example 2 Find the simple interest on \$500 invested for 6 months @ a rate of $7\frac{1}{2}\%$

Solution: $I = P \times R \times T$

$$= 500 \times 0.075 \times 0.5 \text{ (6 months is } \frac{1}{2} \text{ or 0.5 of a year)} = \$18.75$$

The simple interest is \$18.75.

- Find the simple interest on the following principals for the time and rates indicated.

	Principal	Interest Rate	Time
a.	\$3000	6%	2 years
b.	\$10 000	8%	3 years
c.	\$8750	$6\frac{1}{2}\%$	1 year
d.	\$5000	10%	6 months
e.	\$10 000	15%	4 months
f.	\$18 000	16%	3 months

2. Find the simple interest with the following given information.

	Principal	Interest Rate	Time
a.	\$2000	6%	1 year
b.	\$3500	7 ½ %	2 years
c.	\$5000	12%	5 years
d.	\$10 000	18%	6 months
e.	\$1000	9%	3 years 3 months

interest rate

- the rate, usually expressed as a percent, at which invested money increases, or the cost of borrowing money

simple interest

- interest that is paid at the end of the investment time period
- calculated using the formula $I = p \times r \times t$

principal

- the amount of money invested

Example 2: Compare Simple Interest Options

You decide to invest \$300.00 from your savings. You have two options.

Option A: Lend it to your parents for 1 year at an **interest rate** of 6% per year.

Option B: Invest it at a bank that pays **simple interest** of 5% per year for 3 years.

- What amount of interest will you receive with each option?
- Describe the advantages of choosing each option.

Solution

- Use the formula $I = p \times r \times t$, in which

I is the simple interest amount

p is the **principal**

r is the interest rate

t is the length of time the money is invested

Interest rates are given as percents. How can you change a percent to a decimal?

Option A

$$I = p \times r \times t$$

$$I = 300 \times 6\% \times 1$$

$$I = 300 \times 0.06 \times 1$$

$$I = 18$$

How can you use mental math to calculate the product?

With Option A, you will receive \$18.00 in interest at the end of 1 year.

Option B

$$I = p \times r \times t$$

$$I = 300 \times 5\% \times 3$$

$$I = 45$$

With Option B, you will receive \$45.00 in interest at the end of 3 years.

- Using Option A, you receive your principal and interest after only one year. So, you can invest the money again or use some of it. Also, Option A pays \$18.00 after one year compared with $\$45.00 \div 3 = \15.00 per year with Option B.

Using Option B, you receive more money in interest at the end of the time period, \$45.00 as compared with Option A which only pays \$18.00. If you choose Option A and want to invest again after one year, you might get a much lower interest rate and therefore receive less money in total interest than if you had chosen Option B which pays 5% interest for three years.

Show You Know

You borrow \$100.00 from your parents. They say they will charge you 1% simple interest and give you 1.5 years to pay them back. How much will you owe them in total?

For help with #4 and #5, refer to Example 2 on page 252.

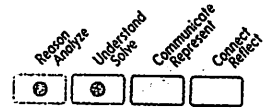
4. Merv deposits \$200.00 into an account for 5 years earning 3% per year.
- In the formula $I = p \times r \times t$, for which variables do you have information?
 - Calculate the amount of simple interest.
 - Does Merv keep the interest or pay it? Explain.
5. Deanna borrows \$130.00 from a relative to help buy some items for her dance project. Deanna is charged 1% interest per year and has 2 years to pay the money back.
- In the formula $I = p \times r \times t$, what value will you use for each of the variables?
 - Calculate the amount of simple interest.
 - Who receives the interest amount? How much money will that person receive?

Apply

6. A number of financial institutions offer online banking.
- Research and record the various banking activities customers can perform online.
 - What are some advantages and disadvantages of online banking?
7. A bank charges \$9.75 per month for managing an account. Additional transactions are charged \$1.25 each. How many additional transactions were there if the total service charge is \$14.75?

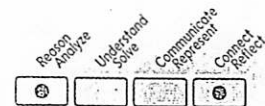
8. ✓ Competency Check

- a) Determine the simple interest earned on a \$1200.00 investment with a 2% interest rate per year after the following time periods.
- 26 weeks
 - 2 months
 - 39 weeks
 - 24 months
- b) How many days would it take to double the initial investment?



9. Write the formula you would use to determine each amount.
- What principal invested at 5% simple interest per year will earn \$100 in interest at the end of 2 years?
 - What interest rate will allow \$2000 to earn \$120 interest in 2 years?
 - How much time will you need to invest \$1000 at a rate of 1% per year to earn \$100 in interest?
10. a) Carly chooses the investment in #9 that offers the greatest interest rate. Which investment does she choose?
- b) After the term of Carly's initial investment, she invests the principal and interest for another two-year term at the same interest rate. How much interest does she receive in total for her four-year investment?

11. Summer works as a tree planter. She has a bank account for each of her areas of interest. On June 21, Summer's pay of \$162.09 was deposited into her primary account.
- Summer goes online and transfers 10% of her pay to an account for her future university studies. How much did Summer transfer?
 - Summer transfers 5% of her pay to an account for gifts and charity. Calculate this amount.
 - Summer is planning a trip to Cuba during the spring break. She puts 15% of her pay into her vacation account. How much did she transfer to this account?
 - How much of her pay does Summer have left?
12. Mike is doing some holiday shopping. In most stores, he uses his bank card to pay. In some stores, he uses cash. Mike withdraws \$80 cash from his account. The ATM receipt says his balance is \$57.30.
- What was Mike's balance before he withdrew the cash?
 - Mike makes a purchase of \$18.48 using his bank card. What is his balance now?
 - Mike is in line at another store with a sweater in his hand that costs \$19.99. What is the after-tax cost of the sweater if Mike pays cash?
Note: Use the tax rate where you live.
13. The PIN (personal identification number) you choose for a bank card or credit card should be private and not be easy for someone to guess. Kris recently opened an account and received a bank card. While setting up his card on the telephone, he chose 5747 as his pass code, or PIN.



- Why do you think Kris chose 5747 as his PIN?
- Did he make a good choice for his PIN? Why or why not?
- List a few examples of number combinations that should not be used as a PIN. Explain your reasoning.

You've Got to Eat!

Grocery shopping in the game of life

1- Menu Planning

Use the meal planner calendar provided and the checklist below to plan your meals. It'll need to be approved by an adult before you move on.

- Eat at least one dark green and one orange vegetable each day.
- Choose vegetables and fruit with little or no added fat, sugar or salt.
- Have vegetables and fruit more often than juice.
- Make at least half of your grain products whole grain each day.
- Choose grain products that are lower in fat, sugar or salt.
- Drink skim, 1% or 2% milk each day. Drink fortified soy beverage if you do not drink milk.
- Select lower fat milk alternatives.
- Have meat alternatives such as beans, lentils and tofu often.
- Choose at least two Food Guide Servings of fish each week.
- Select lean meat and alternatives prepared with little or no added fat or salt.
- Include a small amount of unsaturated fat each day.
- Satisfy your thirst with water.
- Limit foods and beverages high in calories, fat, sugar or salt.

Weekly Meal Planner				
	Breakfast	Lunch	Dinner	Snacks
Sunday				
	Breakfast	Lunch	Dinner	Snacks
Monday				
	Breakfast	Lunch	Dinner	Snacks
Tuesday				

	Breakfast	Lunch	Dinner	Snacks
Wednesday				
	Breakfast	Lunch	Dinner	Snacks
Thursday				



	Breakfast	Lunch	Dinner	Snacks
Friday				
	Breakfast	Lunch	Dinner	Snacks
Saturday				

Signed off by: _____

