Section 3: Earning Income

This book belongs to: KEY **Block:** _____

Section	Due Date	Questions I Find Difficult	Marked	Corrections Made and Understood

Self-Assessment Rubric

Category	Sub-Category	Description	
Expert	6	Work meets the objectives; is clear, error free, and demonstrates a mastery of the Learning Targets	"You could teach this!"
	5	Work meets the objectives; is clear, with some minor errors, and demonstrates a clear understanding of the Learning Targets	"Almost Perfect, one little error."
Apprentice	4	Work almost meets the objectives; contains errors, and demonstrates sound reasoning and thought concerning the Learning Targets	"Good understanding with a few errors."
	3	Work is in progress; contains errors, and demonstrates a partial understanding of the Learning Targets	"You are on the right track, but key concepts are missing."
Novice	2	Work does not meet the objectives; frequent errors, and minimal understanding of the Learning Targets is demonstrated	"You have achieved the bare minimum to meet the learning outcome."
	1	Work does not meet the objectives; there is no or minimal effort, and no understanding of the Learning Targets	"Learning Outcomes not met at this time."

Learning Targets and Self-Evaluation

Learning Target	Description	Mark
$3-1$	• Understanding how to calculate hourly wage and wage plus tips • Clear understanding of overtime and extra wage benefits	
$3-2$	• Understanding how salary is calculated from annual salary • The difference between semi-monthly and bi-weekly • How commission and salary are calculated and pros and cons of both	
$3-3$	• Understanding how percentages are applied to discounts and deductions • Gross vs Net pay and calculating income tax and other deductions	

Competency Self-Evaluation

A valuable aspect to the learning process involves self-reflection and efficacy. Research has shown that authentic self-reflection helps improve performance and effort, and can have a direct impact on the growth mindset of the individual. In order to grow and be a life-long learner we need to develop the capacity to monitor, evaluate, and know what and where we need to focus on improvement. Read the following list of Core Competency Outcomes and reflect on your behaviour, attitude, effort, and actions throughout this unit.

Rank yourself with a check mark: E (Excellent), G (Good), S (Satisfactory), N (Needs Improvement)

		E	G	S	N
Personal Responsibility	• I **listen** during instruction period and come to class ready to ask questions				
	• I am **fully prepared** for Unit Quizzes				
	• I am **fully prepared** to re-Quizzes				
	• I **follow** instructions and **assist** peers • I am **on task** during work blocks • I **complete** assignments **on time**				
Self-Regulation	• I keep track of my **Learning Targets**				
	• I take **ownership** over my goals, learning, and behaviour • I can **solve problems** myself and know when to ask for help • I can **persevere** in challenging tasks • I **take responsibility** to be actively engaged in the lesson and discussions				
	• I only use my phone for school tasks				
Classroom Responsibility and Communication	• I am **focused** on the discussion and lessons • I **ask questions** during the lesson and class • I give **my best effort** and **encourage** others to work well • I am polite and communicate questions and concerns with my peers and teacher				
Collaborative Actions	• I can **work with others** to achieve a common goal • I make **contributions** to my group • I **am kind** to others, can work collaboratively and **build relationships** with my peers • I **can identify** when others need support and provide it				
Communication Skills	• I present informative **clearly**, in an organized way • I **ask and respond** to simple direct questions • I am an **active listener**, I support and encourage the speaker • I **recognize** that there are different points of view and can disagree respectfully				
	Overall				
Goal for next Unit – refer to the above criteria. **Please select** (underline/highlight) **two areas** you want to focus on					

Section 3.1 – Ways of Earning Part 1

- Earning money is a pretty damn important part of life
- Things cost money and understanding how to earn it efficiently and doing something you enjoy can be incredibly valuable
- The first question to ask your self is what are different ways of being paid?

We will cover 4 of these methods extensively and will briefly touch on 3 more

Hourly Wage

- Hourly wage is a form of payment most used by part-time employees and a large number of full-time employees as well.
- It can have tremendous benefits when we consider overtime pay (you'll see)
- It is a simple direct ratio:

$$\frac{Dollars\ (\$)}{Hour\ (hr)}$$

- Just like we saw with **ratios**, the units of $hours$ will cancel out and we are left with $dollars$

Example: If you make $\$11.35$ an hour and work 6 hours, how much to you get paid?

Solution:

$$6\cancel{hr} \cdot \frac{\$11.35}{1\cancel{hr}} = \$\mathbf{68.10}$$

- It's a simple calculation but..
- You see the units cancel out

Example: If you made \$92 and worked 8 hours how much was your hourly wage?

Solution: So here we want $Dollars/1\ Hour$ so we set up our fraction with what we have.

$$\frac{\$92}{8\ hours} = \$\mathbf{11.50/hr}$$

- It is very important to get an understanding of your money.
- Too often we don't look at our paycheck, bill, receipt and we trust the numbers we see
- Always check, and being able to estimate it gives you an idea immediately.

Time and a Half/Double Time

- Things start to really get interesting when we consider overtime
- Overtime generally gets paid out during hours after 8, 12, on Holidays, even on weekends
- Every company pays out overtime according to the BC Standards, this links to the official document,

https://www2.gov.bc.ca/assets/gov/employment-business-and-economic-development/employment-standards-workplace-safety/employment-standards/factsheets-pdfs/pdfs/hours_overtime.pdf

- So in the general realm of overtime you get time and a half, then double time
- Depending on the company you may jump straight to double time, given the scenario

If the whole day is time and a half or double it is easy to calculate (trickier with hourly overtime):

Example: If you work Victoria Day, you get $time\ and\ a\ half$. How much do you make for $4\ hours$ at $\$12.35/hr$?

Solution: Simple process, take your **regular wage**, **multiply** by **the rate**, then by $\mathbf{1.5}$ ***or*** $\mathbf{2}$

$$4hrs \cdot \frac{\$12.35}{1hr} \cdot 1.5 = \$74.10$$ *Time and a Half*

$$4hrs \cdot \frac{\$12.35}{1hr} \cdot 2 = \$98.80$$ *Double Time*

Daily overtime is slightly different

- Since you get your regular wage for the first 8 hours you only calculate the overtime pay for the overtime hours

Example: Steve works 10 hours at $\$14.50/hr$, he gets double time for any hours over 8.

Solution: So we calculate his regular wage for 8 hours, then multiply his other 2 hours by his wage and by 2 (for double time).

$$8hrs \cdot \frac{\$14.50}{1hr} = \$116.00$$ *Regular Time*

$$2hrs \cdot \frac{\$14.50}{1hr} \cdot 2 = \$58.00$$ *Double Time*

Then add them up...

$$116.00 + 58.00 = \$174.00$$ *Total Pay*

Example: Jas gets time and a half for any hours over 7.5. She works 12 hours and gets a wage of $\$15.00/hr$, how much does she make during her shift?

Solution: Remember we only calculate time and a half on the hours over 7.5

$12 - 7.5 = 4.5$

$Overtime\ hours\ =\ 4.5$

$$7.5hrs \cdot \frac{\$15}{1hr} = \$112.50$$ *Regular Time*

$$4.5hrs \cdot \frac{\$15}{1hr} \cdot 1.5 = \$101.25$$ *Double Time*

Then add them up...

$$112.50 + 101.25 = \$213.75$$ *Total Pay*

- Not all jobs pay the same hourly rate
- Different jobs pay overtime at different rates
- Some pay more on weekends or graveyard shifts
- Some jobs pay Danger pay, Wait pay, minimum shift pay, etc.
- Always be aware of how the pay structure at your job works
- And always keep track of it yourself, don't trust they didn't make a mistake

Wage and Tips

- Wage and Tips is where good money can be made
- Some examples of jobs that make tips are:
    - Server
    - Bartender
    - Hotel Bellhop
    - Hairstylist
    - Spa Employees

Mostly Jobs in the Service Industry

- Calculating wage is the same process as the previous section, then we add the tips to the total, then divide by hours worked to get your hourly wage including tips

Example: Jennifer works in a restaurant and makes minimum wage ($\$10.35$). She works a 5 hour shift and makes $110 in tips, how much did she make during her shift and what is her real hourly wage?

Solution:

Hourly Wage	Hourly Wage + Tips
$5 \cdot \$10.35 = \$51.75$	$\$51.75 + \$110 = \$161.75$

New Total Divided by Hours Worked

$$\$161.75 \div 5hr = \mathbf{\$32.35/hr}$$

Example: Shelton makes $\$74$ in tips and works 5 hours at $\$12/hr$. How much does he take home, what is his updated hourly wage?

Solution:

Hourly Wage	Hourly Wage + Tips
$5 \cdot \$12.00 = \$60.00$	$\$60.00 + \$74 = \$134.00$

New Total Divided by Hours Worked

$$\$134.00 \div 5hr = \mathbf{\$26.80/hr}$$

- Next up we will look at Salary and Commission
- After that we will look at various deductions: Income Tax, CPP, EI, etc.

Section 3.1 – Practice Problems

1. Complete the following chart.

Job	Hourly Wage	# of hours worked	Gross Income
Landscaper	$\$9.85/hr$	40	$ 394
Custodian	$\$19.50/hr$	35	$ 682.50
Dog Groomer	$\$11.25/hr$	20	$ 225
Security Guard	$\$15.30/hr$	12	$ 183.60

2. Complete the following chart.

Job	Hourly Wage	# of hours worked	Gross Income
Painter	$ 10.75	50	$537.50
Dishwasher	$ 11.25	18	$202.50
Retail Employee	$ 9.15	27	$247.05
Crossing Guard	$ 10.45	12.5	$130.63

3. Jasmine works at a grocery store and makes $14.50/hr$. Last week she worked two 12 hour days and three 8 hour days. She gets time and a half for hours after 8. What was her Gross income for the week?

12 hours = 8 + 4
reg overtime

12 hours = 8 + 4

40 hours reg
8 hours overtime

3 · 8 = 24 hours reg

40 · 14.50 = 580

8 · 14.50 · 1.5 = 174

580 + 174 = $754

4. Kevin works at the Navy Base as a Pipefitter, he makes $\$32/hr$. He makes double time for night shifts or weekends and time and a half for any hours after 8 during day shifts. Below is a list of his shifts for the last two weeks, how much is his Gross pay.

Monday	$8am - 4pm$		Monday	Off
Tuesday	$3pm - 11pm$		Tuesday	$7am - 6pm$
Wednesday	$8am - 4pm$		Wednesday	Off
Thursday	$3pm - 11pm$		Thursday	$3pm - 11pm$
Friday	Off		Friday	$7am - 6pm$
Saturday	$8am - 4pm$		Saturday	$8am - 4pm$
Sunday	Off		Sunday	$8am - 4pm$

Double time: 8, 2·8, 8, 2·8, 2·8

time and a half: 8 + 3·1.5

Double: 8·2, 8+3·1.5, 8·2, 8·2

8+8+16+16+16

64 hrs week 1

8+16+16+16+8+4.5+4.5

73 hours week 2

64+73 = 137

137 · 32 = $4384 in two weeks

5. Bonnie makes$\$12.40/hr$ and works as a server. On Tuesday she worked for 6 hours and twenty minutes and made \$110 in tips. How much did she make in total and what is her real hourly wage?

6h and 20 mins = $6.\bar{3}$ hrs

$6.\bar{3} \cdot 12.40 = \$78.53$

78.53 + 110 = $188.53 Total

$\frac{188.53}{6\frac{1}{3}} = \$29.77/hr$

6. Sara made \$250 during her 8 hour shift. She made \$160 dollars in tips. What is her hourly wage?

250 + 160 = 410

410 ÷ 8 = 51.25/hr

Section 3.2 – Ways of Earning Part 2

Salary

- Salary is an **annual income** – an amount you get paid every year
- Salary can be paid out on a **bi-weekly or semi-monthly** basis.
    - What's the difference?
        - How many **weeks** in a **year**? 52
        - How many **months** in a **year**? 12
    - So if you get paid **bi-weekly** (every two weeks), how many paychecks do you get?

$$52 \div 2 = \mathbf{26}$$

    - If you get paid **semi monthly** (twice a month), how many paychecks do you get?

$$12 \cdot 2 = \mathbf{24}$$

So bi-weekly you get 2 more paychecks! Same if you get paid hourly, every two weeks.

- Your annual salary is the same, but what changes is how much you get each paycheck

Salary	Bi-Weekly	Semi-Monthly
$60 000	$60 000 ÷ 26 $2307.70	$60 000 ÷ 24 $2500.00
$45 000	$45 000 ÷ 26 $1730.77	$45 000 ÷ 24 $1875.00

- Again, all totals are before deductions

You can figure out your Salary from your paycheck too

- Pay **before deductions** is called your **GROSS** pay
- Pay **after deductions** is called your **NET** pay

Salary is based on this one

Example: If you make $2300 GROSS on a paycheck what is your salary if you get paid semi-monthly? What would your paycheck be if you were paid bi-weekly with the same salary?

Solution:

$$\$2300 \cdot 24 = \$55\,200\ annually$$

Annual Salary

$$55\,200 \div 26 = \$2123.08\ bi-weekly$$

What Bi-Weekly GROSS pay would be

When calculating your Salary from your paycheck you need to know whether you are paid bi-weekly or semi-monthly, then you can determine your GROSS pay.

Bi-Weekly vs. Semi-Monthly

Pro's	Con's
○ Paycheck is always the same ○ Not based on hours worked	○ Paycheck is always the same ○ Not based on hours worked

Why would these be the same?

- You could work more than 40 hours and only get paid for 40
- You could work less than 40 hours and get paid for 40
- You know exactly how much you will get paid each pay period
- There is no incentive to put in more time to increase wage

Commission

- Commission is similar to tips, you get **a percentage on the sale** that is made
  - It can be included **on top** of a **salary or hourly** wage
  - Or your job is **based purely on commission**
- Having a salary or hourly wage and commission provides you with the guarantee of money coming in, but generally the commission percentage is quite low
- When you work strictly commission it is risky, you are not guaranteed money unless you make a sale, but generally the commission percentage is higher
- Calculating commission is **all about percentage**, remember:
  - $2\% = 0.02$
  - $5\% = 0.05$
  - $12.5\% = 0.125$

Example: Genevieve is a car salesperson, she does not make a salary or hourly wage, but makes 2% commission on her sales. How much money does she make on a car that is $53 000?

Solution:

$$53\,000 \cdot 2\% \rightarrow \$53\,000 \cdot 0.02 = \$1060$$

She makes $\$\mathbf{1060}$ **on that sale**

Example: Grant sells Real Estate, he makes 3.5% on the first $100 000 and 1% on the rest of the sale price, how much money does he make if he sells a house for $850 000?

Solution:

$$\$100\,000 \cdot 3.5\% \rightarrow \$100\,000 \cdot 0.035 = \$3500$$

$$\$750\,000 \cdot 1\% \rightarrow \$750\,000 \cdot 0.01 = \$7500$$

Then **add** those together

$$\$3500 + \$7500 = \$11\,000$$

Grant makes $\$\mathbf{11\,000}$ on the sale!!!

- Now if you have an hourly wage and you make a commission, just calculate the two wages separately and add them together

Example: Shi works at Below the Belt, she makes $\$12.45/hr$ and makes 0.5% commission on her sales. Yesterday she worked for $6\ hours$ and sold $\$4500$ worth of merchandise, how much did she make that day?

Solution:

$$\frac{\$12.45}{hr} \cdot 6hr = \mathbf{\$74.70}$$

$$\$4500 \cdot 0.5\% \rightarrow \$4500 \cdot 0.005 = \mathbf{\$22.50}$$

Then add them up

$$\$74.70 + \$22.50 = \mathbf{\$97.20}$$

Shi makes $\mathbf{\$97.20}$

- **Can you work it out backwards?**

If Stephanie makes $18 500 in commission on a sale, and her commission rate is 2.5%, what was the sale price? If: $Sale\ Price(2.5\%) = \$18\ 500$ Then: $SP = \frac{\$18\ 500}{2.5\%} \rightarrow \frac{\$18500}{0.025} = \$740\ 000$ The original *sale price* was: $740 000	If the sale price is $540 000 and the commission was $27 000 what is the commission percentage? If: $\$540\ 000(Commission) = \$27\ 000$ Then: $Commission = \frac{\$27\ 000}{\$540\ 000}$ $Commission = 0.05 = 5\%$

- Working backwards means we have to use our Algebra Skills once again!
- You'll again that our units cancel out perfectly.

Up next we will look at the different deductions that come off your GROSS pay.

Section 3.2 – Practice Problems

1. If your annual salary is $125 000 and you get paid bi-weekly, what is your Gross Pay? What is it if you get paid semi-monthly?

Bi-Weekly

$\frac{125\,000}{26} = \$4807.69$

Semi-Monthly

$\frac{125\,000}{24} = \$5208.33$

2. If you get a Gross Pay Paycheck twice a month of $3200, what is your annual salary?

$3200 \cdot 2 = 6400$

$6400 \cdot 12 = \$76800$

3. Complete the following chart.

Annual Salary	Bi-Weekly Pay	Semi-Monthly Pay
$62 400	$2400	$2600
$238 00	$915.38	$991.67
$68400	$2630.77	$2850
$83 500	$3211.54	$3479.17
$50 908	$1958	$2121.17
$100 800	$3876.92	$4200

4. Adam sells cars and makes 2.5% commission. Last week he sold two cars, one was $63 000 and the other was $28 000. How much did he make?

63000
+ 28000
91000

91000 · 0.025 = $2275

5. Jaewon sells clothes, he makes 3.5% on his first $300 and makes 4% on anything more. He also makes $12.50/hr. How much does he make in an 8 hour shift with sales of $1200?

8h · 12.50/hr = $100

$1200 − $300 = $900

300 · 0.035 = $10.50

900 · 0.04 = $36.00

100 + 10.50 + 36

$146.50

6. Come up with your own question involving salary or commission and then solve it. Make it as challenging as possible.

ANSWERS VARY

7. Harpinder works as a real estate agent, he makes 3% on the first $150 000 and 1.5% on the rest. He had a very successful month and sold three homes, they were $550 000, $890 000, *and* $1.2 *million* respectively. How much did he make that month?

550 000
890 000
1 200 000
$2 640 000

2 640 000 − 150 000
2 490 000

150 000 · 0.03 = 4500

2 490 000 · 0.015 = 37350

$41850

8. Complete the following table, show your work below.

Selling Price	Commission Rate	Commission Amount
$630 000	4.75%	$29 925
$6200	6.25%	$387.50
5456.52	2.3%	$125.50

$x(0.0475) = 29925$

$x = \frac{29925}{0.0475} = 630000$

$6200(x) = 387.50$

$x = \frac{387.50}{6200} = 0.0625$

$= 6.25\%$

$x(0.023) = 125.50$

$x = \frac{125.50}{0.023} = 5456.52$

Section 3.3 – Deductions: Gross versus Net Pay

Deductions

GROSS PAY: Is your pay calculated before any deductions

NET PAY: Is your take home pay, the money you actually get paid

- Why aren't these the same?
    - Well we get money deducted from our paychecks
    - There are three main deductions that everyone gets:

Employment Insurance (EI): This is a fund we all pay into so if you ever get laid-off you can apply for EI, it pays you a percentage of your wage for a certain period of time

Canadian Pension Plan (CPP): This is a fund we all pay into so that generally when you turn 65 you start getting CPP Pension payments

	2017	2018
Canada/Quebec Pension		
Annual Maximum Pensionable Earnings	$55,300.00	$55,900.00
Annual Basic Exemption	$3,500.00	$3,500.00
Annual Maximum Contributory Earnings	$51,800.00	$52,400.00
CPP Contribution Rate	4.95%	4.95%
QPP Contribution Rate	5.40%	5.40%
Annual Maximum CPP Employee Contribution	$2,564.10	$2,593.80
Annual Maximum CPP Employer Contribution	$2,564.10	$2,593.80
Annual Maximum QPP Employee Contribution	$2,797.20	$2,829.60
Annual Maximum QPP Employer Contribution	$2,797.20	$2,829.60

Employment Insurance (EI) - Non-Quebec Employee		
Annual Maximum Insurable Earnings	$51,300.00	$51,700.00
Employee Contribution Rate	1.63%	1.66%
Employer Contribution Rate	2.282%	2.324%
Annual Maximum Employee Contribution	$836.19	$858.22
Annual Maximum Employer Contribution	$1,170.67	$1,201.51

Income Tax Provincial and Federal:

This is tax taken on your income by the Provincial and Federal Government and is based on your annual salary. It is combined and quite complicated, so reference the list below when making your calculations.

Taxable Income	Average Tax Rate
$30 000	12.4%
$40 000	14.3%
$50 000	16.4%
$60 000	18.4%
$70 000	19.8%
$80 000	20.8%
$90 000	22.0%
$100 000	23.4%
$110 000	24.8%
$120 000	26.1%
$130 000	27.2%
$140 000	28.2%
$150 000	29.1%
$200 000	33.3%
$250 000	36.5%
$500 000	43.1%

- So using the percentages above we can determine how much money gets deducted from our paycheck.

Example: Gwen's annual income is $62 000, her semi-monthly GROSS pay is $2583.33. It is her first paycheck of the year. How much money will get deducted for CPP, EI, Income Tax, and what is her NET pay?

Solution:

First we need to identify her tax brackets.

- Since she make $62000
- Income Tax is: 18.40%
- For EI she will always pay my 1.66%
- For CPP she will always pay my 4.95%

Remember its percentage so:

$18.4\% \rightarrow 0.184$
$1.66\% \rightarrow 0.0166$
$4.95\% \rightarrow 0.0495$

Income: $\$2583.33 \cdot 0.184 = \$475.33$

EI: $\$2583.33 \cdot 0.0166 = \$42.88$

CPP: $\$2583.33 \cdot 0.0495 = \$127.87$

Then add all the deductions together and subtract the total from the GROSS wage to get your NET.

$$\$475.33 + \$127.87 + \$42.88 = \mathbf{\$646.08}$$

$$\$2583.33 - \$646.08 = \mathbf{\$1937.25}$$

Gwen's NET pay is: $\mathbf{\$1937.25}$

- There are other deductions that various jobs require to get deducted from your paycheck, but we will only focus on these 4.
- Can you figure this out another way?

Section 3.3 – Practice Problems

1. Steve makes $120 000 annually, calculate his deductions from his semi-monthly paycheques.

CPP 4.95%
EI 1.66%
Incom 26.10%
32.71%

120 000 ÷ 24 = 5000/paycheck

5000 · 0.3271 = $1635.50 in deductions

2. Solace makes $2450 Gross income bi-weekly, what is her annual salary? Use that info to calculate her deductions for her Net pay.

2450 · 26 = $63 700 annually GROSS

CPP 4.95
EI 1.66
Inco 18.40
25.01%

63700 · 0.2501 = 15931.37

63700 − 15931.37 = 47 768.63 annually NET

1837.26 Bi-weekly NET

3. If Simon had a deduction percentage of 27.2% what are the boundaries of his salary? Pick any annual salary in-between the boundaries and calculate the deductions and bi-weekly Net salary.

Boundaries are 130 000 - 140 000

ANSWERS WILL VARY

4. If Houssam has a semi-monthly Gross pay of $5400, what is his annual salary and then calculate his deductions from his paycheck. What is his Net pay semi-monthly?

5400 · 24 = $129600 Annually

EI : 1.66
CPP : 4.95
Incom : 26.10

32.71

129600 · (0.3271) = 42392.16 in deductions

129600 − 42392.16 = 87207.84 NET SALARY

87 207.84 ÷ 24 = $3633.66

5. Come up with your own question, make it as challenging as you can and then answer it.

ANSWERS WILL VARY

Extra Work Space

Answer Key

Section 3.1

1. \$394
   \$682.50
   \$225
   \$183.60
2. \$10.75
   \$11.25
   \$9.15
   \$10.45
3. \$754
4. \$4384
5. $T = \$188.53$
   $H = \$29.77$
6. $\$51.25/hr$

Section 3.2

1. BW: \$4807.69
   SM: \$5208.33
2. \$76 800
3. Left to Right – Top to Bottom
   i. \$62 400
   ii. \$2600
   iii. \$915.38
   iv. \$991.67
   v. \$68 400
   vi. \$2630.77
   vii. \$3211.54
   viii. \$3479.17
   ix. \$50 908
   x. \$2121.17
   xi. \$100 800
   xii. \$3876.92
4. \$2275
5. \$146.50
6. *Answers will Vary*
7. \$41 850
8. Left to Right – Top to Bottom
   i. \$630 000
   ii. 6.25%
   iii. \$5456.52

Section 3.3

1. \$1635.50
2. \$47 768.63
3. *Boundaries are*:
   \$130000 – 140000
   Answer Will Vary
4. \$3633.66
5. *Answers Will Vary*