

8

Budgets



What You'll Learn

To determine the costs related to owning or renting your own house or apartment and to design a monthly budget that reflects these costs

And Why

To make the most of the money you earn, it is important to be aware of all of the costs associated with living on your own.

Key Words

- fixed cost
- variable cost
- utilities
- tenant
- landlord
- budget
- income
- expenses
- savings
- balance

Fixed and Variable Costs

Prior Knowledge for 8.1

A **fixed cost** is the same amount charged at regular intervals. Monthly car payments and insurance payments are fixed costs associated with owning a vehicle.

A **variable cost** changes and may not follow a regular schedule. Gasoline and maintenance costs are variable costs associated with owning a vehicle.

Example

Philippa predicts the costs associated with owning and operating her vehicle. She lists them as fixed costs or variable costs. Calculate the total cost of owning the vehicle this year, based on her predictions and estimates.

Fixed cost	Variable cost
Insurance: \$87/month	Gasoline: \$1.15/L, 18 500 km driven/year, 9.4 L/100 km fuel efficiency
Car loan payment: \$385/month	Oil change: \$34.95 every three months
Licence and ownership: \$75/year	Repairs: \$750/year

Solution

Annual fixed cost	Annual variable cost
Insurance: $\$87/\text{month} \times 12 \text{ months} = \1044	Gasoline: Gasoline used: $18\,500 \text{ km} \div 100 \text{ km} = 185$ $185 \times 9.4 \text{ L} = 1739 \text{ L}$ Cost of gasoline: $\$1.15/\text{L} \times 1739 \text{ L} = \1999.85
Car loan payment: $\$385/\text{month} \times 12 \text{ months} = \4620	Oil change: $\$34.95 \div 3 \text{ months} \times 12 \text{ months} = \139.80
Licence and ownership: \$75	Repairs: \$750
Total fixed cost: $\$1044 + \$4620 + \$75 = \5739	Total variable cost: $\$1999.85 + \$139.80 + \$750 = \2889.65
Total cost: $\$5739.00 + \$2889.65 = \$8628.65$	

For Philippa's predictions, the total cost of owning and operating the vehicle this year is \$8628.65.

CHECK ✓

- Greg has driven 21 540 km this year. The average cost of gas was \$1.21/L. His car has an average fuel efficiency rating of 10.7 L/100 km. Determine the total fuel cost for one year.
- Determine the total annual cost of owning and operating a vehicle with these costs.

Fixed cost	Variable cost
Insurance: \$95/month	Gasoline: \$1.24/L, 19 700 km driven/year, 9.2 L/100 km fuel efficiency
Car loan payment: \$415/month	Oil change: \$39.95 every three months
Licence and ownership: \$75/year	Repairs: \$550/year

- Jazmine is thinking of buying a dog. To estimate what it will cost, she prepares this list of expenses to research.
 - Classify each expense as fixed or variable.
 - Which will be one-time costs?

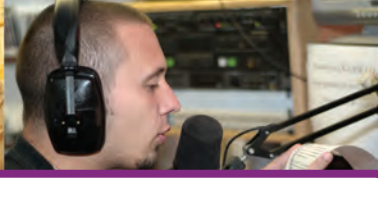
Dog Expenses

- Buying the dog
- Dog licence
- Obedience training course
- Food
- Annual vet visit and shots
- Vet visits for illness
- Grooming products or services
- Toys and other supplies

- Pedro has always been a good athlete. He decides to begin training and competing in triathlons. To estimate what it will cost, he prepares this list of expenses. Classify each expense as fixed or variable.

Triathlon Expenses		
bicycle	helmet	bicycle shoes
bike maintenance and parts	sunglasses	running shoes
biking and running clothes	bathing suits	wet suit
swim goggles	fitness training	race entrance fees
membership in triathlon club		

- Use the *Example* on page 474. How likely do you think each of Philippa's predicted costs is? Explain your thinking.



Your Financial Future

Transitions

Whether you are at school or working, you will have financial goals. You may want to save for items such as a computer, a car, a vacation, education, retirement, or a down payment on a home. These steps can help you save.

- Identify your savings goals.
- Decide when you hope to reach each of your goals.
- Design a savings plan to meet your goals.
 - Set up a separate bank account for your savings.
 - Pay yourself first. Whenever you receive money, put some of it into your savings account. For example, you may decide to save 10% of any money you receive.
 - Make a monthly savings amount an expense that you include in your monthly budget.
 - Money in a savings account will earn interest. You can also decide to invest the money you save in some other way that will help it grow, such as by buying stocks or real estate.

Search words

- personal banking
- personal financial services
- accounts and services
- payment services
- investments
- financial planning

- Complete questions 3 and 4 after you complete Chapter 8.

1. Choose a Canadian bank. You will need access to the Internet to search the bank's Web site, print materials about the savings alternatives offered at the bank, or a representative from the bank. Research the services the bank offers to help individuals save. For example, you can arrange to have a certain amount of money automatically transferred from your chequing account to your savings account each month, or arrange for pre-authorized RSP contributions.
2. Apply strategies for saving as you design and adjust budgets in this chapter.
3. How can you use a budget to help you save to meet your financial goals? Explain.
4. Which of the strategies described above do you think you may use to save in the future?

Depending on your housing needs, your income, and where you live, you may have many housing options: a duplex, detached house, townhouse, condominium, apartment, mobile home, or room.



Inquire

Materials

- access to the Internet or print materials such as newspapers or magazines with real estate ads
- maps of your town or city
- TI-83 or TI-84 graphing calculator

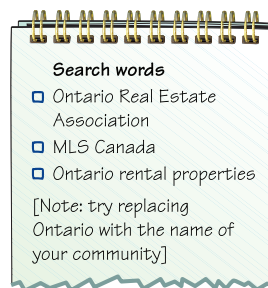
Choosing Properties to Rent or Buy

Work in small groups.

- Describe what you would look for if you were choosing a home in your community for each person or family described below. Include details such as location, number of bedrooms and bathrooms, parking, and special features.
 - A single working adult with a vehicle
 - A college student with no vehicle
 - A single parent with a young child and a teenager; the parent has a vehicle but the teenager uses public transit
 - A couple with three children, aged 5, 9, and 12; the family has two vehicles
- Find one property to rent and one property to purchase in your community that you think would be suitable for each person or family described above.

Include at least one of each of these types of dwellings among the properties you choose.

- Room
- Apartment
- Condominium
- Townhouse
- Detached house



Utilities are services such as heat, water, and electricity.

Save the housing cost data you find for use in Lesson 8.6.

See Chapter 7 for information on using the TVM Solver.

- Record the monthly rental cost of each rental property you picked and answer these questions:
 - Are utilities and parking included in the cost?
 - Does the person renting have to pay first and last month's rent as part of the initial agreement?
 - Will the person renting have to sign a lease agreeing to rent for a certain period of time?
- For each property you picked to purchase, determine the monthly mortgage payment. Assume a 10% down payment, a 7.95% annual interest rate, and a term of 15 years. Use an online mortgage calculator or the TVM Solver on a TI-83 or TI-84 graphing calculator to perform the calculations.
- Gather information about other expenses involved in moving to a new home, such as moving costs, legal fees, mortgage insurance, home inspection, condo fees, and so on. Decide whether buyers, renters, or both would have to pay these costs.
- Choose one of the properties you researched. Write a persuasive letter to the person or family for whom you chose the property. Describe why you think the home is suitable and outline the costs involved in moving to it.

Reflect

- Will renting or owning require a greater initial investment? Justify your answer.
- You only considered the initial costs of buying a home. What additional expenses might an owner have each month?
- How could you use this research in your own life?

8.2

The Costs of Owning or Renting a Home

Your mortgage or rent payment is just one of the costs of housing. You must also think about insurance, utilities, appliances, furnishings, maintenance, and repairs. These expenses may contribute significantly to your housing cost.



Investigate

Comparing Renting and Owning a Home

Work in small groups.

Read the case studies on page 480.

Use the information to answer these questions.

Fixed costs are the same every time.

Variable costs vary depending on factors such as level of use of a service.

- What are the fixed costs for each household?
What are the variable costs?
- Determine how much the household will spend on housing in a year.
- Does renting or owning appear to involve greater costs?
Which will likely leave you more money for other things, such as vacations or savings?
- If you want to move, will it be easier if you rent or own?
What factors may affect this? Justify your answer.
- In each case study, who do you think would have to pay for repairs if the stove or another appliance were to break? Who would pay if the roof needed repairs?

CASE STUDY 1

Aziza works full time. Her husband Hassan is a student with a part-time job.

- They rent a 2-bedroom loft apartment.
- They pay \$975 a month in rent.
- The rent includes heat, water, electricity, parking, laundry, and cable TV.
- They have a phone plan that includes unlimited calling within Canada and the US and 400 min of overseas calling for \$59.95 a month.
- They do not have a lease, and pay rent month to month.

CASE STUDY 2

The Martins are a retired couple with no children living at home. They own a 2-bedroom condo.

- Their mortgage payments are \$981.72 a month.
- They pay condo fees of \$450 per month. These fees include heat, electricity, water, and maintenance.
- They pay \$387.92 to insure their condo unit each year.
- Their property taxes are \$1976.47 a year.
- They have a cable/phone/Internet bundle that costs \$99 a month.

CASE STUDY 3

Tom and Hyo-Jin are a working couple with a 5-year-old child. They own a 3-bedroom detached house.

- Their mortgage payments are \$1465.33 a month.
- They pay \$336.52 twice a year for home insurance.
- Their property taxes are \$2358.60 a year.
- They pay for water, sewer, and electricity every two months. The bills for the last year were: \$210.23, \$199.51, \$186.88, \$188.76, \$213.75, \$193.69
- Their home is heated by natural gas. Their gas bills for the last year were: \$145.82, \$103.44, \$83.12, \$78.71, \$31.69, \$22.02, \$25.07, \$23.66, \$25.03, \$48.26, \$93.51, \$120.96
- They rent a water heater for \$52.95 every 3 months.
- They have a phone plan that includes unlimited calling within Canada and the US and costs \$49.95 a month.

Reflect

- Were the costs for renting or owning higher than, lower than, or about what you expected? Explain.
- How are the housing needs of the people in each case study different?
- Do you think you will rent or buy your first home? Explain.

Connect the Ideas

Costs of renting

- A **tenant** uses a property owned by another person, the **landlord**, and pays rent to the landlord for the use of the property.
- Depending on the rental agreement, utilities and services such as heat, water, electricity, and parking may be included in the rent. Otherwise, the tenant will pay for them.
- The tenant usually pays for her or his phone, cable, and Internet service.
- A tenant may buy tenant insurance to protect her or his belongings.

Costs of owning

- Most Canadians who buy property use a cash down payment and a mortgage loan. This loan must be repaid.
- Owners pay property taxes.
- Most owners buy home insurance to protect their home and its contents.
- Condo owners usually pay a monthly fee to cover operating, maintenance, administrative, and improvement costs.
- Owners pay for all utilities, maintenance, and services they use.

Example 1

Calculating Annual Expenses

Determine how much each expense will cost for one year.

- Monthly rent of \$665.
- Bi-weekly mortgage payments of \$856.21.
- Semi-annual home insurance payments of \$546.75.

Solution

- There are 12 months in a year.
 $12 \times \$665 = \7980
The annual cost is \$7980.

- b) Bi-weekly means every two weeks.
 There are 26 two-week periods in a year.
 $26 \times \$856.21 = \$22\,261.46$
 The annual cost is \$22 261.46.
- c) Semi-annual means twice a year.
 $2 \times \$546.75 = \1093.50
 The annual cost is \$1093.50.

In Ontario, the laws that cover landlord-tenant relations are part of the Residential Tenancies Act. Here are some of the details from the law.

Tenants' rights

- Your rental home must be safe and in good repair.
- You must have access to services such as heat, hot and cold water, electricity, and fuel.
- You have a right to privacy, though the landlord can enter the home for repairs, to show it to prospective tenants, or in an emergency.
- Your landlord can raise the rent once every 12 months and must give you 90 days written notice of the increase.

Tenants' responsibilities

If a tenant does not uphold her or his responsibilities, the landlord can give a notice of termination stating the problem and asking the tenant to fix it or move out.

- You must pay your rent on time.
- You must keep the home reasonably clean.
- You are responsible for repairing any damage you cause to the unit.
- If you sign a lease agreeing to rent the property for a specified period of time, you must honour the lease and give 60 days notice before the end of the lease if you do not intend to renew.
- If you have a month-to-month rental, you must give 60 days written notice before moving out.

Example 2

Knowing Your Rights

Katrina is two months behind on her rent. Her landlord threatens to cut off the electricity and heat. Explain whether or not the landlord can legally carry out her threat.

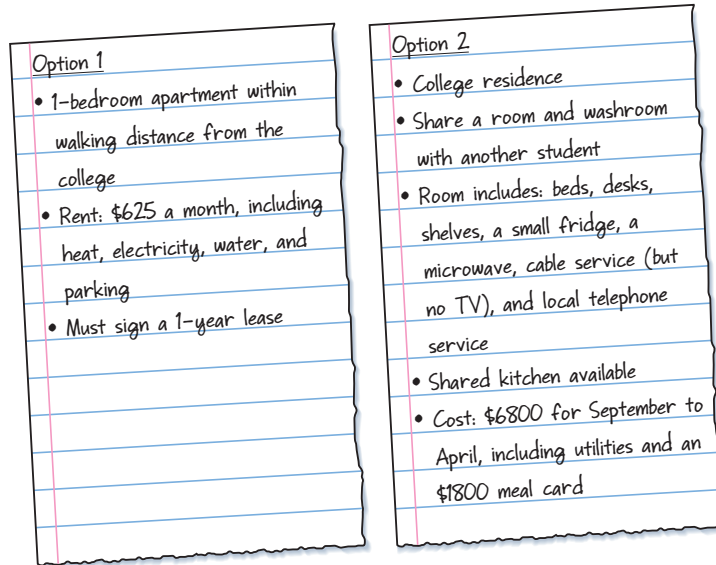
Solution

The landlord cannot carry out her threat. By law, the tenant has a right to services such as electricity and heat. The landlord can give Katrina notice to either pay the money owed or move out.

Example 3

Comparing Rental Properties

Adisa will be moving to Sarnia to attend college.



- What would be the annual rent for the apartment?
Is it more or less expensive than living in residence?
- What additional expenses might Adisa have in setting up the apartment that he would not have for the residence room?
- What, if any, benefits might there be to living in the apartment?
To living in residence?
- Which option would you recommend? Justify your answer.

Solution

- $12 \times \$625 = \7500 . The annual rent would be \$7500.
The apartment is more expensive than living in residence.
- Adisa would have to purchase furnishings if he can't bring them from home. He may also want to get telephone and cable services.
- In the apartment, Adisa would have more privacy. He could have visitors more easily, and would have a place to stay in the summer if he gets a job in Sarnia. Living in residence, he might find it easier to meet new people. He would need less money since he would not have to provide furnishings, or do grocery shopping or cooking.
- To save money, I would recommend staying in residence the first year. Adisa may meet people with whom he could find shared off-campus housing the next year.

Practice

A

■ For help with question 1, see Example 1.

Use the *Course Study Guide* at the end of the book to recall the meaning of the common payment periods.

■ For help with questions 4 and 5, see Example 2.

1. Determine how much each expense will cost for one year.
 - a) Monthly rent of \$1250
 - b) Bi-weekly mortgage payments of \$975.56
 - c) Semi-annual home insurance payments of \$328.14
 - d) Monthly cable bill of \$32.95
2. Classify each of the following as either fixed or variable expenses.
 - a) Monthly rent
 - b) Monthly charges for natural gas
 - c) Bi-weekly mortgage payments
 - d) Bi-monthly charges for water usage
3. Determine the total monthly housing cost.
 - a) Rent of \$650 plus \$88 for utilities
 - b) Rent of \$980 plus \$179 for utilities
 - c) Rent of \$320 plus a one-third share of \$150 for utilities
 - d) Rent of \$235 plus a one-quarter share of \$200 for utilities
4. Ashley broke a window in the apartment she rents. Explain whether she or her landlord is responsible for replacing it.



5. Paul is a landlord. He includes the cost of utilities in the rent he charges. Because utility costs are higher than Paul expected, he asks the tenants to pay an extra \$30 per month. Explain whether or not he can legally do this.

Use the following information to answer questions 6 to 8 and part a of question 9. Rob is a single parent who owns a 2-bedroom house.

Rob's Annual Housing Expenses	
Expense	Cost
Bi-weekly mortgage payments	\$607.79
Quarterly home insurance payments	\$68.75
Annual property taxes	\$1738.50
Water, sewer, and electricity bills (received bi-monthly)	\$180.45, \$164.32, \$156.74, \$149.76, \$167.23, \$185.18
Natural gas bills (received monthly)	\$123.02, \$99.47, \$64.82, \$70.51, \$24.16, \$19.79, \$23.09, \$21.58, \$22.14, \$36.44, \$78.58, \$112.56
Monthly phone and TV bill	\$62.95

B

6. Classify Rob's expenses as fixed and variable.
7. How much does Rob spend each year on mortgage payments?
8. What are Rob's total annual housing expenses?
9. Some natural gas companies allow their customers to pay in twelve equal payments based on the previous year's bills. Adjustments are made later for actual usage levels.
 - a) Calculate Rob's monthly gas bill if he uses an equal payment plan.
 - b) Use the data in Case Study 3, page 480. Calculate Tom and Hyo-Jin's monthly gas bill if they use an equal payment plan.
 - c) Why might this plan appeal to some homeowners?



- 10.** Use the data in Case Study 3, page 480. Tom and Hyo-Jin have a bachelor apartment in the basement of their home. To help with household expenses, they decide to rent it. They will include utilities in the monthly rent.
- a) They calculate their annual costs for heat, electricity, water, and sewage. They decide to charge \$350 plus one-quarter of these utility costs. What will the rent be?
 - b) They research other bachelor apartments in their neighbourhood. They find one that costs \$600 per month and another that costs \$570. Both are all inclusive. Is the rent they plan to charge reasonable? Justify your answer.

■ For help with questions 11 and 12, see Example 3.

- 11.** Samayah is moving to Ottawa to attend college. She finds two apartments within walking distance from the campus. Both require her to sign a 1-year lease.

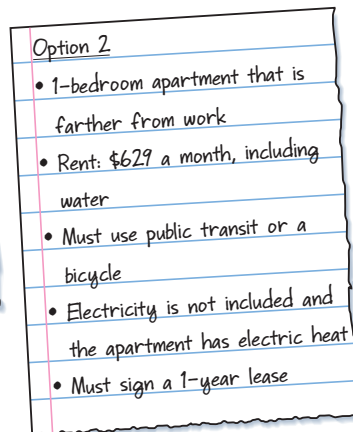
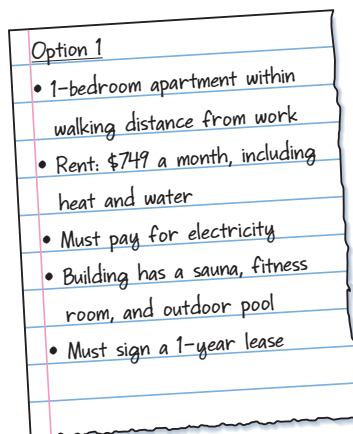
Option 1 A 1-bedroom apartment in a low-rise. The rent is \$635 per month including heat, water, and parking. Samayah will have to pay for electricity. No smoking and no pets are allowed.

Option 2 A 1-bedroom apartment that is the top floor of a house. The rent is \$650 a month including heat, electricity, water, and parking. No smoking is allowed, but pets are allowed.

- a) What would be the annual rent for each apartment?
- b) What additional expense will Samayah have in the first apartment?
- c) Which option would you recommend to Samayah? Justify your answer.



- 12. Assessment Focus** Tyrell has just graduated from college and is moving to Hamilton to start a full-time job. He has found two apartments he likes.



- a) What would be the annual rent for each apartment?
- b) What additional costs will Tyrell have with each apartment? How do you think they will compare?
- c) Which option would you recommend to Tyrell? Justify your answer.
- 13. Literacy in Math** Imagine you were looking for a rental property in your community. List five factors that would affect your choice. Rank the factors from most to least important. Explain how you decided on the order.
- C** **14.** Create a case study similar to those in *Investigate*. Write and answer two questions about owning or renting a home related to your case study.

In Your Own Words

Decide whether you think this statement is true. Justify your answer.
Usually tenants have lower housing costs than homeowners, so most people should rent their home.

8.3

Estimating Living Costs

The costs of running a household vary greatly depending on the number, ages, and activities of people living in the home. Where you live and the things that are important to you may affect your living costs as well.



Inquire

Researching Living Costs Using E-STAT

Materials

- computer with Internet access
- E-STAT user name and password

If you are working from home, you will need to get a user name and password from your teacher.

You will need a computer with access to the Internet and E-STAT.

Go to the Statistics Canada Web site.

- Click **English**.
- Select **Learning resources** from the menu on the left.
- Click on **E-STAT** in the golden box on the right.
- Click on **Accept and enter**.

E-STAT: Table of contents	
Economy	
Business performance and ownership	Manufacturing
Business, consumer and property services	Prices and price indexes
Construction	Retail and wholesale
Economic accounts	Science and technology
Information and communications technology	Transportation
International trade	
Land and Resources	
Agriculture	Environment
Energy	
People	
Aboriginal peoples	Income, pensions, spending and wealth
Children and youth	Labour
Culture and leisure	Languages
Education, training and learning	Population and demography
Ethnic diversity and immigration	Seniors
Families, households and housing	Society and community
Health	Travel and tourism
Nation	
Crime and justice	Government
Historical Centres of Canada	
1665-1871	
Elections Canada	
2000: Provinces and Territories	2000: Federal electoral districts
1997: Provinces and Territories	1997: Federal electoral districts

The E-STAT table of contents will be displayed.

- In the *People* section, click on **Income, pensions, spending and wealth**.
- From the list of CANSIM data, click on **Household spending and savings**.
- Click on table **203-0001**.

This table contains data about the amount of money households throughout Canada spend on a variety of expenses in a year.

Household expenditure summary-level categories (19 items)

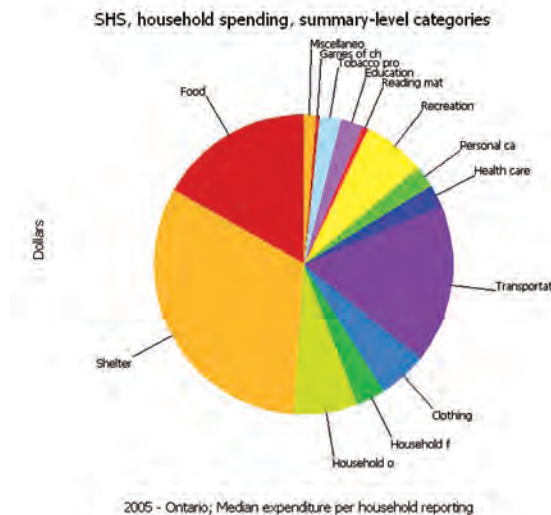
<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Total expenditure
<input type="checkbox"/>	Total current consumption
<input checked="" type="checkbox"/>	Food
<input checked="" type="checkbox"/>	Shelter
<input checked="" type="checkbox"/>	Household operation
<input checked="" type="checkbox"/>	Household furnishings and equipment
<input checked="" type="checkbox"/>	Clothing
<input checked="" type="checkbox"/>	Transportation
<input checked="" type="checkbox"/>	Health care
<input checked="" type="checkbox"/>	Personal care
<input checked="" type="checkbox"/>	Recreation
<input checked="" type="checkbox"/>	Reading materials and other printed matter
<input checked="" type="checkbox"/>	Education
<input checked="" type="checkbox"/>	Tobacco products and alcoholic beverages
<input checked="" type="checkbox"/>	Games of chance (net)
<input checked="" type="checkbox"/>	Miscellaneous expenditures
<input type="checkbox"/>	Personal taxes
<input type="checkbox"/>	Personal insurance payments and pension contributions
<input type="checkbox"/>	Gifts of money and contributions

- Under *Geography*, select **Ontario**. Under *Household expenditure summary*, you will be selecting 14 items, but there are too many choices to see all at once. Click on **View checklist** to display all the items more conveniently. Scroll down and select all 14 items in the *Total current consumption* category.

- On which four of these items do you think a typical Ontario household spends the most? Justify your predictions.

The *median* is the middle number when a set of numbers are in numerical order, or the mean of the two middle numbers.

- Scroll up to the top of the page and click **Return to pick list**. Under *Statistics*, select **Median expenditure per household reporting (dollars)**. This measure gives the median amount a household spent on an item for all households reporting spending money on the item. Set both reference periods to the most recent year available. Click on **Retrieve as a Table**.
- Select the output format. In the *SCREEN OUTPUT formats* section, under *Graph (maximum 13 series)*: select **Pie chart (last observation)**. Click on **Retrieve now** for the following display:



2. a) What were the six greatest expenditures for Ontario households?
How do you know?
- b) How accurate were your predictions in question 1?
- c) Estimate the fraction of household consumption represented by each item in part a.

- To view the data as a table, click **Back** on the tool bar.

In the *SCREEN OUTPUT formats* section, under *HTML Table*: select **Time as columns**.

Click on **Retrieve now**.

3. Use the data in the table to check your estimates in part c of question 2.
- Print the table for use in question 4 and in Lesson 8.4.
- Click on the **Back** button twice to return to the *Subset selection* page. Retrieve data about a different province.
4. Repeat questions 1 to 3 using the new data.
Compare your answers for the two provinces.

The data you have been using are the median expenditures for households that participated in the survey and reported spending money on the items you selected.

- Click on the back button twice to return to the *Subset selection* page. Under *Geography*, select **Ontario**. Under *Statistics*, select **Average expenditure (dollars)**, then hold down the **Ctrl** key and select **Median expenditure per household reporting (dollars)**. Display the data in a table.

5. a) How do the average and median data compare?
- b) Which categories appear to show the greatest differences?
Why do you think this is?
- c) Which data do you think provide a better estimate of typical household expenditures? Justify your answer.

You will use the data again in Lesson 8.4, *Practice* question 13.

The *average* gives the mean amount per household for all households in the survey.

6. Describe how, if at all, you think each of these factors might affect household expenditures on food, shelter, clothing, or transportation. Justify your answers.
- The number of people in a household
 - The number of teenagers in a household
 - A family member with special dietary requirements
 - A family that needs a wheelchair-accessible home and vehicle



7. How might the neighbourhood, size of town or city, or province you live in affect your living costs? Give examples to support your ideas from E-STAT data or personal observations.

Reflect

- Did you prefer to work with the household expense data in table form or in graph form? Give reasons for your choice.
- How might personal requirements and lifestyle choices affect the costs of running a household? Justify your answer.

Mid-Chapter Review

- 8.1**
- List two housing expenses that both renters and owners may have to pay.
 - List three expenses that only owners would pay.
 - Mark and Jen live in your community with their two children. They rent a three-bedroom condominium.
 - List the housing expenses that Mark and Jen would incur.
 - Estimate each monthly expense that you listed in part a for your community. Explain how you estimated.

- 8.2**
- Determine how much each housing expense will cost for one year.
 - Weekly mortgage payments of \$346.78
 - Monthly phone bill of \$29.95
 - Monthly rent of \$765
 - Bi-annual insurance bill of \$427.60
 - Quarterly water heater rental of \$68.95
 - Karim's landlord phones to tell Karim that he will be raising the rent by 2.7% next month. Explain whether or not this is legal.
 - Ivor estimated his monthly housing costs. Calculate the total cost for one year.

Description	Frequency	Cost (\$)
Rent	monthly	950.00
Contents insurance	bi-monthly	35.00
Cable/Internet	monthly	95.00
Electricity	monthly	45.00
Home furnishings	semi-annually	750.00

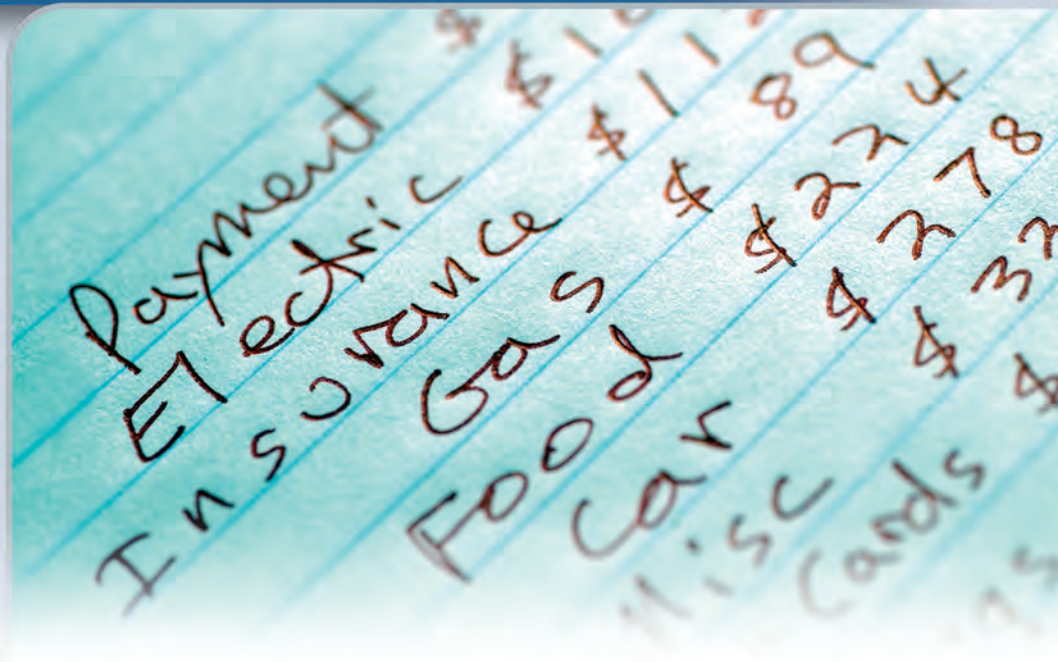
- Melissa and Farideh will be moving to Owen Sound to attend the same college and plan to share an apartment.

 - They find a 2-bedroom apartment within walking distance from the college. The rent is \$750 a month, including utilities.
 - In the same building, they notice a 3-bedroom apartment for rent for \$795 a month, including utilities.
 - Both apartments require a 1-year lease.
 - Calculate each girl's annual housing cost if they rent the 2-bedroom apartment and share costs equally.
 - Farideh suggests they rent the 3-bedroom apartment and find another roommate. If they share expenses, what amount would each girl save in a year?
 - Suppose they rent the 3-bedroom apartment, but the third roommate leaves after 6 months and they cannot find another roommate. Will the girls still have saved money? Justify your answer.
- Go to the Statistics Canada Web site. Follow the steps from Lesson 8.3 to access table **203-0001** and make category selections, but under *Geography*, choose two cities.

 - What are the 5 greatest expenses in each city?
 - How do the amounts spent on these items compare?
 - Which city appears to be more expensive? Justify your answer.

8.3

A **budget** is a detailed plan that compares what you earn with what you spend for a set period of time. Budgets can help you see where your money is being spent and can highlight areas where you might be able to reduce spending.



Investigate

Materials

- scientific calculator
- *Microsoft Word*
- BudgetTemplate.doc

Net income is the income you have after income tax and other **payroll deductions** (Canada Pension Plan, Employment Insurance) have been subtracted.

Creating a Budget

Work with a partner or in a small group.

Mikayla rents a small apartment. She is starting to think about buying her first home.

- Her net annual income is \$29 550.
- Her monthly rent is \$650, which includes heat and water.
- Her electric bill averages about \$50 a month.
- She leases a car. The lease includes maintenance. Her monthly payments for the car and insurance are \$350.
- She spends an average of about \$120 a month on gasoline.
- Her weekly expenses for groceries and household supplies average \$120.
- She spends up to \$200 a month on eating out and entertainment.
- Her gym membership costs \$30 each month.
- Clothing, home furnishings, vacations, her pet dog, and other miscellaneous costs total about \$4000 each year.

Personal budgets are usually planned monthly. Monthly amounts can then be multiplied by 12 to determine annual amounts.

Budget categories

Income and expenses are recorded by type of income or expense. Money set aside for a future use is called **savings** and is shown as an expense.

A broad category, such as *Housing*, may be broken down into more specific categories, such as *Mortgage payment*, *Utilities*, and *Insurance*. Or, several types of expenses may be grouped under one category, such as *Entertainment*.

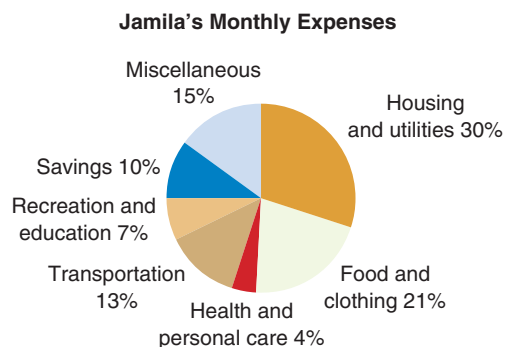
The categories chosen depend on how a person or family earns and spends money. Every source of income and every regular expense should fit in a category.

Example 1

Interpreting a Budget

This circle graph represents Jamila's expenses for one month.

- List the expenses from greatest to least.
- The total of Jamila's monthly expenses was \$3000. How much did she spend on transportation?



Solution

- Housing and utilities, Food and clothing, Miscellaneous, Transportation, Savings, Recreation and education, Health and personal care
- Write 13% as a decimal: 0.13
 $0.13 \times \$3000 = \390
Jamila spent \$390 on transportation.



Balancing a budget

The **balance** is the difference when total expenses are subtracted from total income.

If the balance is negative, you are spending more than you earn.

You need to adjust some expenses so that the balance is zero.

This is called **balancing** the budget.

If the balance is positive, you can save the money for unexpected expenses or spend some of it.

Predicted and actual budgets

Expenses and income are often estimated, or predicted. The actual amounts earned and spent are then tracked and compared with the predicted amounts.

Example 2

Materials

- scientific calculator

Bi-weekly means every two weeks.

Balancing a Budget

Raul is studying to become a cabinetmaker and furniture technician. He worked full time in the summer to pay for his tuition, books, and supplies. However, he was not able to save enough for his living expenses during the school year.

He receives a \$3500 scholarship each school year.

He also earns \$500 bi-weekly at a part-time job.

He has payroll deductions of \$74 bi-weekly.

His other expenses are: rent and utilities at \$400 each month, transportation \$80 each month, food \$75 each week, entertainment \$25 each week, clothing \$110 each month, and \$100 bi-weekly for miscellaneous items.

- Use the data provided to design a monthly budget for the school year.
- Is Raul earning enough to cover his expenses? If not, suggest how he could balance his budget. Explain your reasoning.

There are 52 weeks in a year and 26 two-week periods.

Solution

- a) Group income items together and expense items together. Determine a monthly amount for each item. Round amounts to the nearest dollar.

To convert a weekly expense to a monthly expense, multiply by 52, then divide by 12.

To convert a bi-weekly amount to a monthly amount, multiply by 26, then divide by 12.

Income	Monthly amount (\$)
Scholarship ($\$3500 \div 12$)	292
Part-time job ($\$500 \times 26 \div 12$)	1083
<i>Total income</i>	1375
Expenses	
Payroll deductions ($\$74 \times 26 \div 12$)	160
Rent and utilities	400
Transportation	80
Food ($\$75 \times 52 \div 12$)	325
Entertainment ($\$25 \times 52 \div 12$)	108
Clothing	110
Miscellaneous ($\$100 \times 26 \div 12$)	217
<i>Total expenses</i>	1400
<i>Balance (Total income – total expenses)</i>	–25

- b) Raul is spending \$25 more than he earns each month. He is also not saving money for unexpected expenses. He should reduce his expenses by \$25 to break even. He should try to reduce even more to have money for unexpected expenses. The easiest categories to cut back on are entertainment, clothing, and miscellaneous costs.

Fixed and variable costs

Sometimes budgets show fixed and variable costs separately to make it easier to see which categories of expenses can be adjusted, if necessary.

Example 3

Materials

- scientific calculator

Designing a Budget to Meet a Savings Goal

Anika needs to save \$7500 over the next 12 months to start her own small business. Her monthly paycheque after payroll deductions is \$3000. She earns an average of \$50 a month from investments. She prepares a list of her expenses.

Anika's Expenses

Housing

- \$850 for rent each month, which includes heat and water
- an average of \$75 each month for electricity
- \$105 a month for a phone/cable/Internet bundle

Transportation

- monthly car payment of \$420
- annual vehicle licence fee of \$75
- \$420 for car insurance twice a year
- \$150 a month for gas
- \$30 every three months for oil changes
- \$450 per year for maintenance and repairs

Other

- \$250 for groceries
- \$200 for clothes and personal care
- \$100 a week for restaurant meals
- \$20 automatically deducted from her bank account for charitable donation

The amounts for groceries, clothes, personal care, and charitable donation are monthly expenses.

- Convert all amounts to monthly amounts.
- Which costs are fixed?
- Are there expenses that you think Anika has forgotten to include? Explain. Estimate the monthly amount for any missing expenses.
- Create a monthly budget that shows fixed and variable expenses in each budget category. Group items where appropriate. Include any estimates from part c.
- What percent of Anika's costs are fixed? Why is this important?
- Can Anika meet her savings goal with her current income and expenses? If not, in which categories might she be able to cut back on costs?
- How did the budget help you answer parts e and f? Explain.

Round all monthly amounts to the nearest dollar.

First convert weekly or bi-weekly costs to annual costs, then convert to monthly costs.



Solution

a) Vehicle licence fee:

$$\$75 \div 12 \text{ months} \doteq \$6/\text{month}$$

Oil changes:

$$\$30 \div 3 \text{ months} = \$10/\text{month}$$

Vehicle maintenance and repairs:

$$\$450 \div 12 \text{ months} \doteq \$38/\text{month}$$

Restaurant meals:

$$\$100/\text{week} \times 52 \text{ weeks} \div 12 \text{ months} \doteq \$433/\text{month}$$

Car insurance:

$$\$420 \div 6 \text{ months} = \$70/\text{month}$$

Savings:

$$\$7500 \div 12 \text{ months} = \$625/\text{month}$$

All other amounts given are for one month.

b) Rent, phone/cable/Internet, car payment, vehicle licence fee, car insurance, charitable donations, and her monthly savings amount are fixed costs.

c) Anika has not included any costs for entertainment. Even if she spends very little on this, she would likely spend at least \$30 a month.

d) Organize the given data by grouping expenses in categories. Display fixed and variable costs separately. See page 500.

e) From the table on page 500, Anika's total expenses are \$3282, of which \$2096 are fixed.

To express as a percent, divide the fixed costs by the total costs and multiply the result by 100%.

$$\$2096 \div \$3282 \times 100\% \doteq 64\%$$

About 64% of Anika's expenses are fixed. This is important because it is harder to cut back on fixed costs than variable.

f) No, Anika needs to spend at least \$232 less each month. She will need to reduce some of her variable expenses, such as clothing and restaurant meals. She could also consider cutting her cable service.

g) The budget shows the total expenses and total fixed expenses for the month. This information is needed to calculate the percent in part e. The budget also shows how much Anika is overspending. You need to know this to determine how much she has to reduce spending.

Oil changes and other car maintenance expenses are grouped.

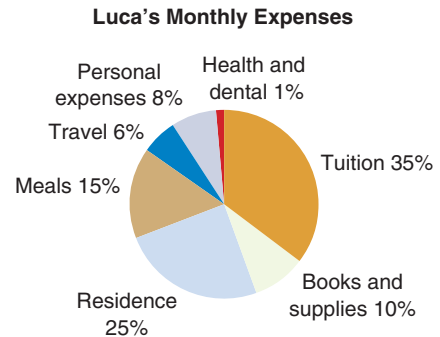
	Monthly amount (\$)		
INCOME	Fixed	Variable	Total
Salary	3000		3000
Investments		50	50
<i>Total income</i>	3000	50	3050
EXPENSES			
Housing			
Rent	850		850
Utilities		75	75
Phone/cable/Internet	105		105
<i>Subtotal</i>	955	75	1030
Transportation			
Car payment	420		420
Fuel cost		150	150
Insurance	70		70
Other	6	48	54
<i>Subtotal</i>	496	198	694
Food			
Groceries		250	250
Restaurant meals		433	433
<i>Subtotal</i>	0	683	683
Other			
Clothing/personal care		200	200
Entertainment		30	30
Charitable donations	20		20
<i>Subtotal</i>	20	230	250
Savings	625		625
<i>Total expenses</i>	2096	1186	3282
<i>Total income – Total expenses</i>			–232

Practice

A

■ For help with question 1, see Example 1.

- The circle graph represents Luca's expenses for one month.
 - Which three categories represent his greatest monthly expenses?
 - Luca spent a total of \$1600 for the month. What amount did he spend on books and supplies?



- Classify each item as either income or an expense.

a) rent	b) loan payment	c) wages from part-time job
d) water bill	e) child care	f) scholarship
- Ingrid works as a legal assistant. She has a net yearly income of \$32 500.
 - Calculate Ingrid's monthly income.
 - Ingrid has monthly expenses of \$2400. Is Ingrid in a position to save money or is she in debt at the end of the month? Explain how you know.
- Classify each item as income or an expense. Then convert the item to a monthly amount.
 - groceries, \$140/week
 - net salary, \$56 000 a year
 - online auction sales, about \$275 bi-monthly
 - property tax, \$800 quarterly

■ For help with questions 4 and 5, see Example 2.

B

As you work on the questions, round all monthly amounts to the nearest dollar.

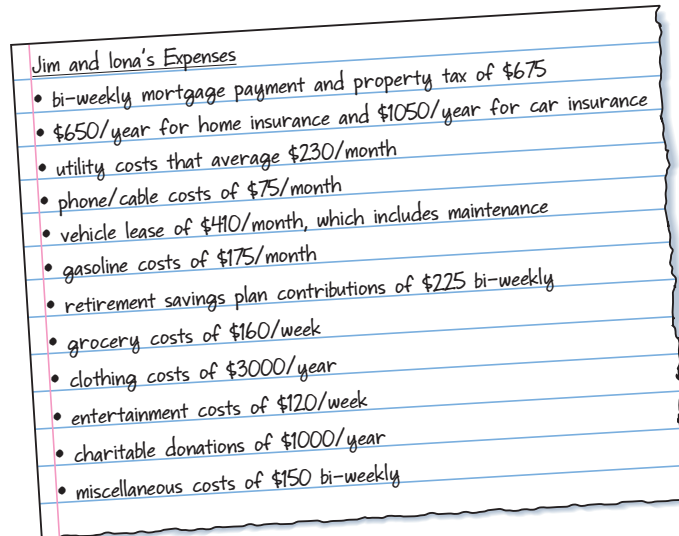
- Yvonne is a student at a community college. She has a part-time job with take-home pay of \$260 each week. She has also received a student loan of \$5000 for the year. Her parents pay her tuition.
 - Design a monthly budget using the data provided. Show your calculations.
 - Is Yvonne earning enough to cover her expenses? If not, suggest how she could balance her budget.

Yvonne's Expenses

- Rent and utilities: \$550/month
- Food: \$85/week
- Bus pass: \$65/month
- Cell phone: \$25/month
- Books and supplies: \$1200/year
- Miscellaneous: \$250/2 weeks

Use the following information to answer questions 6–8.

Over the coming year, Jim and Iona want to save \$5000 for a vacation. Their total net income is \$65 000/year. They earn about \$75/month from investments. They currently have the following expenses:



■ For help with questions 6 and 7, see Example 3.

6. Convert all of the income and expense items into monthly amounts. Which are fixed and which are variable?
7. a) Design a monthly budget for Jim and Iona that shows fixed and variable costs.
b) Can Jim and Iona meet their savings goal with their current income and expenses? If not, in which categories might they be able to cut back on costs?
8. Jim has to cut back on his work hours to look after an ill parent. As a result, Jim and Iona's net income is reduced to \$58 000/year. Can they still meet their savings goal? If not, suggest how they could balance their budget.



- 9. Assessment Focus** Halima works part time as a waitress. She earns a take home salary of \$425 a week including tips. Her expenses are \$650 a month for rent and utilities, \$95 a week for groceries, \$80 a month for a bus pass, and \$150 bi-weekly for miscellaneous expenses. She is also taking a course at a community college and must set aside \$100 a month for her education expenses.
- Design a monthly budget using the information provided. Show your calculations.
 - Is Halima earning enough to cover her expenses? Explain.
 - Halima would like to take a vacation. She needs to save \$1000 over the next 4 months. Will this be possible with her current budget? If not, how could she adjust her budget to save this money?

- 10.** Nihal is an apprentice arborist. From January until the end of August, he will be earning \$350 per week in net pay from a part-time job. Starting in September, he will spend 12 weeks in school. He will not work during this period. He will return to work at the beginning of December.

- By the end of August, Nihal needs to save \$900 to pay for his tuition and equipment. Design a monthly budget for the first 8 months of the year to help him meet this goal. How much money will Nihal save each month?
- During the 3 months that Nihal is at school, he will receive a total of \$2310 in Employment Insurance. Design a monthly budget for this period. How much of his savings will Nihal need to use to meet his monthly expenses during this period?
- Nihal also wants to save \$1500 by the end of December for a trip to British Columbia. Can he do it? Explain.

Nihal's Monthly Expenses	
Expense	Cost (\$)
Rent	450
Utilities	120
Food	320
Clothing	30
Bus pass	60
Entertainment	40
Phone and Internet	60
Contact lenses	25

- 11. a)** Think of your own finances or imagine the finances of a “typical” Grade 12 student in your community. Create a monthly budget that includes all income and expenses.
- b)** Are there any items that you could change to save more money on a monthly basis? Is this realistic?

Use the E-STAT data you researched in Lesson 8.3.

- 12. Literacy in Math** Write a short paragraph on the features of a “good” budget plan. Possible topics to mention may include: how to set goals, track expenses, decide on areas to cut back, and monitor progress.
- 13.** In Lesson 8.3, you researched the median annual expenses of Ontario households across 14 categories. Two categories were not included in the data: personal insurance payments and pension contributions of about \$325/month and gifts of money and contributions of about \$60/month.
- Which categories would you combine if you were creating a budget? Explain your thinking, then determine the combined annual expenses for these categories.
 - Calculate the median monthly expenses for all the categories.
 - Suppose a household had expenses equal to these provincial medians. What would the total monthly expenses be?
- 14.** Clive works part time from the beginning of September to the end of April, while he is attending college, and then full time through the summer months. He lives in a college residence during the school year and at home during the summer. What difficulties might he encounter when trying to create a monthly budget? Suggest at least one way he could solve the problem.
- C** **15.** a) Choose one of the monthly budgets you have designed. Determine the percent of the total monthly expenses that each individual monthly expense represents.
b) Create a circle graph that shows the breakdown of the monthly expenses.
- 16.** Think about how your financial situation will change once you graduate from high school. Create a monthly budget that incorporates your vision of your financial situation one year from now.

What tools can you use to help you draw the circle graph?

In Your Own Words

What factors make it difficult for you to follow a budget at this point in your own life? How important do you think it is for high school students to create a monthly budget?

8.5

Creating a Budget Using a Spreadsheet

A budget can help you save for a financial goal, whether that goal is paying for a vacation, a wedding, or college tuition.

Spreadsheet software is an effective tool for creating the budget because it allows you to quickly see the effects of changes you make.



Inquire

Designing a Budget Using Technology

Materials

- Microsoft Excel
- Budget.xls (optional)
- access to the Internet (for Part C only)

Work with a partner.

Part A: Creating a Monthly Budget

Nuri is in his third year of employment as a firefighter. Nuri has been tracking his spending for several weeks so that he can create a monthly budget.

Income: Annual net income of \$36 850
Investment income of \$500 every six months

Expenses: \$750 per month for rent, utilities, and household services
\$425 per month for transportation
\$110 each week for food and household supplies
\$50 each week for entertainment
\$150 bi-weekly for miscellaneous items



1. Open the file *Budget.xls*. If you do not have the file, start a new spreadsheet file and enter the text and formulas shown here. Format the cells in column B as shown.

	A	B
1	Nuri's Monthly Budget	
2	Description of Income	Monthly Amount (\$)
3		
4		
5		
6		
7	Total	0
8		
9	Description of Expense	Monthly Amount (\$)
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20	Total	0
21		
22	Balance	0

Save a copy of Nuri's budget.

If the balance is shown in brackets, it is negative.

2. Enter each income and expense in the spreadsheet, changing income and expenses to monthly amounts as needed. Use the calculation capabilities of the spreadsheet software to complete this task. For example, to calculate Nuri's net monthly income, enter the formula: = 36850/12 in the appropriate cell in column B.
3. What is the balance? Does this mean Nuri is spending too much or has money left over? How do you know?



Part B: Adjusting a Budget

Reviewing your budget is an important step in keeping an accurate record of your financial situation. If there are changes in your earnings, expenses, or long-term plans and goals, it will be necessary to make adjustments to your budget.

- 4.** Nuri receives a raise. His net salary increases to \$37 955. Open the budget worksheet that you completed in Part A. Change Nuri's budget worksheet to reflect this change.
 - a) What effect does this change have on the balance?
 - b) If the change leads to monthly debt, suggest what Nuri could do to avoid debt. Test your ideas by adjusting the expenses in the spreadsheet.

- 5.** Repeat question 4 for each of these changes. Begin with the spreadsheet you saved in Part A each time.
 - a) Nuri gets engaged and wants to save for a wedding and honeymoon trip. He wants to save \$250/week for the next several months.
 - b) Nuri would like to save \$12 000 over the next year towards a down payment on a cottage.
 - c) Nuri's sister plans to enter a paramedic program at college. Nuri wants to save \$2000 in the next 2 months to lend her for tuition.
 - d) Nuri is hurt at work and needs 2 months to recover. During this time he earns 80% of his usual net salary.

- 6.** Do any of the changes in question 5 carry other costs that Nuri should budget for? Might any increase his income? Explain with details.



Part C: Budgeting for a Goal of Your Choice

Choose a goal from this list.

- Making a down payment for a townhouse, condo, or duplex in your community
- Paying for a college education in the program of your choice
- Paying for a two-week vacation of your choice
- Buying a small boat or making a down payment on a larger boat

Research the costs involved with this goal. Decide an approximate length of time Nuri will save for the goal. Revise Nuri's original budget to reflect this change.

Practice

A

1. Describe what each formula in cells B7, B20, and B22 of Nuri's budget spreadsheet is calculating.
2. List four lifestyle changes that would require a person to revise her or his monthly budget.

Use the following information to answer questions 3 and 4.

Rebecca is a second-term apprentice electrician. She has 3 more months of work before she starts a 2-month period of study at school. During this time, she needs to save \$525 to pay for school courses, books, and supplies.

Her net weekly income is \$481.12. Her expenses are:

\$480 per month for rent and utilities

\$75 per week for food and household supplies

\$40 per week for entertainment

\$15 per week for transportation

\$200 bi-weekly for miscellaneous items

B

3. Create a monthly budget for Rebecca using the spreadsheet template.
 - a) How much money will she have to set aside each month for schooling?
 - b) How much extra money can she save during the 3-month period?

4. Rebecca has just started her 2 months of class time. She will receive employment insurance (EI) benefits of 55% of her net income. She will have the same expenses, except she will not need to save for schooling.

- a) Revise the budget that you created in question 3 to reflect these new conditions.
- b) Can Rebecca pay her monthly expenses with the money she earns from EI?

If not, she will use her extra savings from part b of question 3. How much will she have left after two months?



5. Oliver is just starting his last year of high school. He has take-home pay of \$275 bi-weekly from a part-time job. He lives at home and pays \$30 per week for room and board. His other expenses are:
- \$30 per month for a cell phone
 - \$25 per week for entertainment
 - \$70 bi-weekly for miscellaneous items
- a) Create a monthly budget for Oliver using the spreadsheet template. How much money can he save each month?
 - b) Oliver is applying to a chef training program at college. If he is accepted, over the next 10 months he needs to save \$2000 to pay for the first term's tuition and supplies. Can he save this with his current expenses? If not, suggest how he could change his spending to meet this goal.

Reflect

- Do you prefer to create a budget on paper or use technology? Explain your choice.
- Choose one way you adjusted a budget in this lesson. Describe how you made the decision about how to adjust the budget. Explain the effect of that decision in your budget.

Budget Shuffle Challenge

GAME

Materials

- *Budget Shuffle Challenge* template with original data and space for three reworked budgets
- *Budget Change Cards*
- 1 die
- scientific calculator

A *Budget Change Card* explains a change that has occurred in Elishea's circumstances or lifestyle.

Play in two teams of 1 to 3 players.

The template shows Elishea's monthly budget. In this game, you will be reworking this budget to meet Elishea's savings requirements and new financial situations.

- Shuffle the *Budget Change Cards* and place them in a pile. One team chooses a card from the pile. The other team rolls the die and multiplies the result by 100. The result is the amount of savings Elishea wants at the end of the month.
- Each team reworks the budget to reflect both of these new requirements.
- When both teams are finished, check the accuracy and reasonableness of each other's work.
- If mistakes are found, the team that made the budget must correct them.
- Each team that creates an accurate and reasonable budget without having to correct it scores 10 points. A team that creates an accurate budget after one chance to correct it scores 5 points. If a team is unable to produce an accurate budget, it scores no points.
- Take turns drawing *Budget Change Cards* and rolling the die until each team has created three new budgets. Each turn, begin with Elishea's original budget.
- Each team adds the total score for all three budgets. The winner is the team with the greater score.

Reflect

- Which items in Elishea's budget could you not change? Justify your answer.
- Which items in Elishea's budget were the most flexible? Explain whether you think this is true for most household budgets.

8.6

Making Decisions about Buying or Renting

Deciding whether to rent or buy a home depends on many factors: availability, cost, your housing needs, income, savings, and expenses. You also should consider whether changes may occur in your lifestyle that will affect your future needs and finances.



Inquire

Deciding Whether to Rent or Buy

Work in small groups.

In Part B, you will need the housing cost data you researched in Lesson 8.1.

Part A: Factors Influencing Housing Decisions

- Brainstorm a list of at least five factors that would influence a decision whether to rent or buy property.
- Identify the expenses from the list below that only someone purchasing property would pay, that only a renter would pay, and that both purchasers and renters may pay. Which are one time expenses and which are ongoing?

down payment	insurance	legal fees
home inspection	moving costs	appliances
mortgage payments	furnishings	utilities
land transfer tax	property taxes	landscaping
repairs and maintenance	painting	renovations
yard equipment such as lawnmower		

- Which appears to be more expensive: buying or renting a home? Justify your answer.
- Once a buyer pays off the mortgage, he or she owns the property. How is this different from renting? Why does this make owning property appealing?



Part B: Making a Recommendation about Renting or Buying

Consider this case study.

CASE STUDY

- Jane and Greg Dillon have two children, aged 6 and 10.
- The family rents a townhouse in Calgary and pays \$1350 monthly rent, plus utilities.
- With their current income and expenses, the Dillons are able to save \$1230 each month.
- They have \$45 000 in savings.
- Greg has accepted a two-year contract as a process operator at a refinery in Ontario, with an option to renew for 2 additional years. His net monthly salary will be \$4285, which is \$585 greater than his current monthly salary. His employer will pay the family's moving expenses.
- Jane is a teacher. She hopes to find a permanent full-time position within a year. Until then, she thinks that she will be able to supply teach two days a week on average. This will represent a drop of \$315 each week from her current net salary.

The Dillons are deciding whether to rent or buy a home in Ontario.

Use the data you researched in Lesson 8.1.

- Assume Jane is able to supply teach two days a week. By how much will the net monthly family income increase or decrease because of the move?
- What one-time expenses might the Dillons have if they buy a home? How much of their savings should they set aside for these costs?
- What additional monthly expenses might the Dillons have if they buy a home? Estimate the cost of these expenses.
- How much do you think the Dillons can afford to spend on housing each month after they move? Justify your answer.
- If they were to buy a home, how much of their savings would you recommend Jane and Greg use as a down payment? Justify your answer.

Suppose the Dillons are moving to your community.

- Which of the properties you researched should the Dillons buy or rent? Justify your choice by listing the major advantages and any important disadvantages of what you are recommending. Present your recommendation in a form that you think would convince the Dillon family to consider your recommendation.

Practice

A

A home inspection is optional and is sometimes provided by the seller.

1. The Khamvosa family is buying a house in August. Their initial costs of purchasing the home are shown. Determine the total initial cost.

- Down payment: \$25 000
- Legal fees and disbursements: \$1200
- Land transfer tax: \$1500
- Property tax for Aug. to Dec.: \$900
- Home inspection: \$350
- Moving costs: \$800
- Six months of home insurance: \$300
- Washer and dryer: \$1800

2. The Huether family is moving to a rental townhouse. Their initial costs of renting the home are shown. Determine the total initial cost.

- First and last month's rent: \$2500
- Moving costs: \$800
- Six months of tenant's insurance: \$175

In questions 3, 5, and 7, determine whether renting or buying is the better option. Justify your answer by describing the factors that led you to your recommendation.

B

- 3.** Mario and Julia have a net annual combined income of \$75 000. They have no children. The total of their monthly expenses, not including any expenses related to owning or renting, is \$2000. They have savings of \$35 000.

Option 1: Buying a 1-bedroom condo

Down payment of \$20 000, monthly mortgage payments of \$1700, and monthly condo fees of \$300

Option 2: Renting a 1-bedroom condo

\$1050 per month, plus utilities

- 4.** Refer to question 3. Suppose that Mario and Julia will have a baby in a few months. When Julia takes maternity leave, their combined net income will drop to \$51 500.

- How will having a baby affect their housing needs?
- Will Mario and Julia still be able to afford these housing options? Explain.
- What recommendation would you make to them about housing? Justify your answer.

- 5.** The Walters family includes 2 children aged 12 and 18. Both parents are working full time and have a bi-weekly net income of \$2750. The total of their monthly expenses, not including expenses related to owning or renting, is \$3150. They have savings of \$40 000.

Option 1: Buying a 3-bedroom detached house

Down payment of \$30 000, bi-weekly mortgage payments of \$1050

Option 2: Renting a 3-bedroom detached house

\$1270 per month, including utilities

- 6.** Refer to question 5. Suppose that the Walters' older child will be leaving home to attend college in a few months. The Walters will give her an allowance of \$450 per month to help pay for schooling and living expenses.

- How will this affect the money they can spend on housing?
- Would you still make the same recommendation about renting or buying? Justify your answer.

- 7.** Narges is starting a 4-year nursing program offered cooperatively by a college and university. Her parents have offered to help her buy a house that she could share with other students. She has also found an apartment

she could rent. Which option would you recommend? Justify your recommendation. What factors other than financial considerations may affect her decision?

Option 1: Buying a 3-bedroom bungalow

Narges' parents would pay a \$35 000 down payment and the initial moving costs.

Narges would be responsible for monthly mortgage payments of \$1945.81.

The house has a basement apartment that is rented at \$750/month, all inclusive.

Narges plans to rent 2 bedrooms in the main floor to other nursing students for \$400/month each, including utilities.

Option 2: Renting a 1-bedroom apartment in a high-rise

\$929 per month, including utilities



8. A credit rating tells the lender how likely a person is to be able to pay back a loan. It is based on the person's financial history and affects how much a person might be loaned and the interest rate charged. Explain how your credit rating might affect your choice of whether to rent or own a home.
9. Explain how owning a home could be considered a type of long-term investment. If a person decides to rent, what other options does he or she have for creating a long-term savings plan?

Reflect

“Over the long term, buying a home is always a better decision than renting one.” Debate this statement. What factors would lead a person to support this opinion?

Financial mathematics plays an important role in a variety of occupations. Many major life decisions also require an understanding of personal finance or the advice of financial professionals.



Inquire

Materials

- computer with Internet access
- print materials about college programs
- job advertisements from newspapers

Researching Occupations and College Programs

Financial mathematics is used in a variety of occupations.

For example:

- A mortgage broker finds the mortgage that is best for her client.
- An auto mechanic creates a detailed budget when he applies for a loan to set up his own repair shop.
- A certified financial planner analyses his client's assets, debts, and financial goals and recommends how the client can reach her goals.
- A sales manager sets and monitors sales targets for the sales representatives she supervises.

Work in a small group.

Part A: Creating a List of Occupations

List occupations that involve finance. Include a few words that you think are important about each occupation.

- Use your general knowledge about occupations.
- Think of people you know who use finance at work.
- Use search words to research on the Internet. Specify Canadian or Ontario sites.
- Look at job advertisements on the Internet and in newspapers. Decide whether finance is required. Note the education and experience expected.

Occupations Involving Finance
Bookkeeper
Real estate agent/assistant
Small business owner
Loan officer
Credit counsellor

Part B: Researching Occupations

- Each group member should select two occupations from the list developed in Part A to research further. You may choose to:
 - Read about the occupation on the Internet or in printed material.
 - Contact and interview someone who works in the occupation.
- Summarize your research. Include details such as:
 - What are the main duties involved in this occupation?
 - How is financial mathematics used in this occupation?
 - What is a typical wage or salary for someone in this occupation?
 - What are the job opportunities for this occupation?
 - Are there part-time or summer jobs for students related to this occupation?



Many apprenticeship programs involve a combination of work terms and study terms at college.

Part C: Researching College and Apprenticeship Programs

- Research college and apprenticeship programs that prepare for work in the occupations you researched.
- Use information for colleges in Ontario or in a region where you would like to study. You might:
 - Read program and course descriptions on college Web sites, in libraries, at colleges, or in your guidance department.
 - Talk with people who work at colleges or with college students.
- Summarize your research. Include details about these topics:
 - College name and location
 - Prerequisites for programs and for courses
 - Course descriptions
 - Work experience during the program
 - Length of time for programs, diplomas, or certificates
 - Further education in the field after the program

Part D: Preparing Your Report

- Share your research with the other group members.
- Together, combine your research about occupations and about education for these occupations. You might prepare a visual display, a magazine article, or an oral presentation.

Reflect

- Why is knowledge of financial mathematics important even if you do not take a college course or work at an occupation related to finance?
- How might you use the knowledge of personal finance that you have gained in this chapter after you graduate from high school?
- What advice would you give someone who wanted an occupation in finance? How would you convince them to consider your advice?



Study Guide

Fixed and Variable Costs

- Fixed costs are the same amount every time.
- Variable costs vary depending on factors such as level of use of a service.

Renting and Owning Accommodation

- A tenant uses a property owned by another person, the landlord, and pays rent to the landlord for the use of the property.
- The landlord is usually responsible for paying for property taxes, property insurance, and maintenance. Depending on the rental agreement, the landlord may also pay for utilities.
- A home owner has purchased a property to live in. This usually involves making a down payment and getting a mortgage that is paid back to the bank over many years.
- A homeowner is responsible for paying for repairs, utilities, taxes, insurance, and any other costs involved in maintaining the property.

Income and Expenses

- Income is the amount of money you earn.
- Net income is the income you have after income tax and other payroll deductions, such as Canada Pension Plan and Employment Insurance, have been subtracted.
- Expenses are the money you spend.

Budgets

- A budget is an organized list that records income and expenses. It can be a valuable tool to help you manage your savings.
- Income and expenses are organized and recorded in categories.
- A broad category, such as *Housing*, may be broken down into more specific items, such as *Mortgage payment*, *Utilities*, and *Insurance*. Or, different types of expenses may be grouped under one category, such as *Entertainment*.
- The categories depend on how a person or family earns money and spends it. There should be a category for each source of income and regular expense.

Chapter Review

8.1

1. What would you look for if you were choosing a home in your community for each person or family described below? Include the location, number of bedrooms and bathrooms, and other features.
 - a) A single working adult who uses a bike and public transit
 - b) A single parent who drives a car and has one young child
 - c) A couple with two children, aged 1 and 5; the family has a van
2. Spence and Lia live in your community with their twin two-year-old daughters. They own a 3-bedroom townhouse.
 - a) List the housing expenses Spence and Lia would have.
 - b) Estimate how much each expense you listed in part a might cost per month. Explain how you estimated.

8.2

3. Determine the amount of each expense in one year.
 - a) Monthly rent of \$875
 - b) Bi-weekly mortgage payments of \$623.94
 - c) Semi-annual home insurance payments of \$268.55
 - d) Monthly phone bill of \$37.95
4. Determine the total monthly housing cost.
 - a) Rent of \$715 plus \$65 for utilities
 - b) Rent of \$938 plus \$102 for utilities
 - c) Rent of \$280 plus a one-third share of \$210 for utilities
 - d) Rent of \$335 plus a one-quarter share of \$180 for utilities

5. Toby listed his monthly housing costs. Calculate his total housing cost for one year.

Description	Frequency	Estimated cost (\$)
Rent	monthly	875.00
Contents insurance	bi-monthly	80.00
Cable/Internet	monthly	79.00
Utilities	bi-weekly	90.00
Home furnishings	semi-annually	600.00

6. In the apartment above Rashid's, a water pipe breaks, which affects Rashid's apartment. Does the landlord have the right to enter Rashid's apartment to assess the damage?
7. Tori is moving to Kitchener to attend college. She finds two housing options. Which option would you recommend? Justify your answer.
 - a) A room in a furnished apartment shared with two other students. The rent is \$450 per month including utilities. Tori would have to sign a 1-year lease.
 - b) A room in a furnished 2-bedroom suite in residence with shared kitchenette and bathroom. The cost is \$5450 for September to April and includes utilities, cable, Internet, and local phone service.

8.3

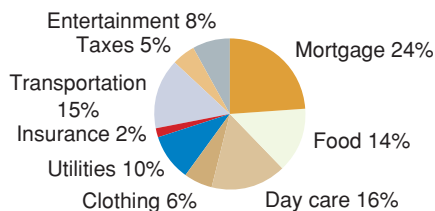
8. Go to the Statistics Canada Web site. Follow the steps from Lesson 8.3, but select table **203-0003** instead. Retrieve data about Ontario and one other province. Compare the median amounts spent on **Rented living quarters, Owned living quarters, and Water, fuel, and electricity for principal accommodation** in the most recent year available. In which province did people spend more on housing? Justify your answer.

9. a) In which province from question 8 would you expect people to spend more on food? Justify your prediction.
- b) Follow the steps from Lesson 8.3, but select table **203-0002** instead. Check your prediction in part a by comparing the median amounts spent on **Food purchased from stores and Food purchased from restaurants**. Were you correct?

8.4

10. This circle graph shows the monthly expenses for the Aboulnaga family.
- a) Which category represents the greatest expense? The least?
- b) The Aboulnaga family spends a total of \$5000 each month. What amount do they spend on day care each month?

The Aboulnagas' Monthly Expenses



11. Classify each item as income or an expense. Convert the item to a monthly amount.

- a) Allowance: \$30/week
- b) Tuition: \$2000 every 6 months
- c) Gasoline: \$45 every 2 weeks
- d) Canada Savings Bond interest: \$815 a year

12. Luigi lives in a townhouse with his wife Olga and baby Olivia.

- Luigi's take-home pay: \$2400 per month
 - Rent: \$975 per month, including utilities
 - Phone plan: An average of \$50 per month
 - Car payment: \$325 per month
 - Gasoline: An average of \$50 per week
 - Food: \$120 per week
 - Car and contents insurance: \$30 per week
 - Entertainment: \$170 per 2 weeks
 - Miscellaneous: \$200 per month
- a) Design a monthly budget using the data provided. Show your calculations.
- b) Is the family earning enough to cover its expenses? If not, suggest how Luigi and Olga could balance their budget.



Use the case study presented below to answer questions 13 to 15.

Phillip and Teresa have two school-aged children. Both parents work full time. Their bi-weekly take-home pay is \$1270 and \$1500. These are their regular expenses:

Description	Expense
Mortgage payment	\$1380 monthly
Food and restaurants	\$435 bi-weekly
Utilities and services	\$550 monthly
Transportation	\$700 monthly
Property tax	\$750 quarterly
Vacation expenses	\$1925 annually
Entertainment	\$90 weekly
Insurance and RSPs	\$400 monthly
Miscellaneous	\$500 monthly

- 13.** a) Design a monthly budget using the data provided. Show your calculations.
 b) Is the family earning enough to cover its expenses? If not, suggest how Phillip and Teresa could balance their budget.
- 14.** Teresa cuts back her work from 5 days a week to 4. Her salary decreases by 20%.
 a) Create a new budget that reflects this change. If the budget is not balanced, suggest changes the family could make.
 b) The family would like to begin saving \$300 each month for an RESP fund for their children. Suggest changes that could be made to their budget to make this possible.

- 8.5** **15.** Verify your results from questions 13 and 14 by using spreadsheet software to create a budget.

- 8.6** **16.** Hamid and Farah Feiz have 3 children. Hamid works full time and has a bi-weekly net income of \$1850. Farah works part time and has a net monthly income of \$2200. Their monthly expenses, not including housing, are \$3000. They have savings of \$35 000.

Option 1: Buying a 3-bedroom house

Down payment of \$25 000 with weekly mortgage payments of \$405

Option 2: Renting a 4-bedroom house

\$1595 per month, plus utilities

Is renting or buying the better option for the Feiz family? Justify your answer.

- 17.** Refer to question 16. Suppose Farah has her work hours reduced. Her net monthly income decreases to \$1750. Is it still possible for the Feiz family to purchase the home?
- 18.** Caroline is a single parent. Her annual net income is \$42 000. She has \$25 000 in savings. Caroline spends \$125/week on food, \$400/month on transportation, \$120/month on clothing, \$75/2 weeks on entertainment, and \$200/month on miscellaneous expenses.
Option 1: Buying a 3-bedroom townhouse
 Down payment of \$18 000
 Bi-weekly mortgage payments of \$640
 Monthly maintenance fees of \$250
Option 2: Renting a 3-bedroom townhouse
 \$1025 per month, plus utilities
 Which housing option would you recommend to Caroline? Justify your answer.
- 8.7** **19.** List 3 topics you have learned about in this chapter that a person would use in a career related to financial mathematics or in life outside of work.

Practice Test

Multiple Choice: Choose the correct answer for questions 1 and 2. Justify each choice.

- The Marcella family spends \$250 per week on groceries. How much should they budget monthly for their grocery costs?
A. \$1000 B. \$1083.33 C. \$541.67 D. \$500
- Which is not a tenant's responsibility?
A. Pay rent on time B. Give 60 days written notice before moving out
C. Pay property tax D. Repair any damage he or she causes

Show your work for questions 3 to 6.

- Communication** Explain the difference between fixed and variable costs in relation to renting or owning your own home. Include examples.
- Knowledge and Understanding** Raj is moving to London to attend college. He finds two housing options near the campus.
 - What would be the annual rent for each option?
 - What additional expense will Raj have if he chooses Option 1?
 - Which option would you recommend to Raj? Justify your answer.
- Thinking** Create a monthly budget that could reflect your circumstances six months after you leave high school. Estimate all income and expenses that you predict you will have.

Option 1

- Room in a home shared with three other students
- Rent: \$350 per month plus one-quarter of all utilities

Option 2

- 1-bedroom basement apartment in a house
- Rent: \$470 a month, including all utilities
- Must sign a 1-year lease

- Application** The Wang family owns a 3-bedroom condominium. Both parents work full time. Their combined take-home pay is \$5000 each month. Here are the expenses that the family has on a regular basis:
 - Express each expense as a monthly expense.
 - Create a monthly budget for the Wang family. Determine the amount of money left at the end of each month.
 - Mr. Wang is laid off. Even with Employment Insurance benefits, the Wang's monthly income decreases by \$1000. Revise the budget to reflect this change.

Wang Family Expenses

- Mortgage: \$1400 per month
- Condo fees: \$275 per month
- Utilities: \$350 per month
- Property tax: \$2500 per year
- Condo insurance: \$560 per year
- Food: \$200 per week
- Day care: \$225 per week
- Transportation: \$600 per month
- Vacations: \$1500 per year
- Entertainment: \$150 per week

Your plans for next year may include a college or apprenticeship program, or working full time. It's important for you to consider the financial aspects of achieving your goals.

Create a financial plan for your goals, by:

- Describing your goals
- Estimating expenses
- Planning your finances

A spreadsheet may help you summarize your findings.

Goals: A statement of what you want to accomplish; for example, live at home and work for a year while you save for college, or start an apprenticeship and share an apartment, or work and save money for a down payment on a car.

Expenses: What will it cost to achieve your goal? Plan for living expenses as well as the cost of the goal itself. For example, if your goal is attending college, find out about tuition, residence, books, lab and other student fees, as well as living expenses.

Finances: How much can you expect to earn through summer, part-time, or full-time employment? Will you need a loan to cover the extra amount needed? If so, what interest rate might you expect to pay and what will the monthly payments be? If your goal involves buying a car, would leasing be a better plan?

French scientist Louis Pasteur is believed to have said “Luck favours the prepared mind.” How can a financial plan help you make important decisions about your future?



You may find it helpful to use the resources on the Ontario School Counsellors' Association Web site.