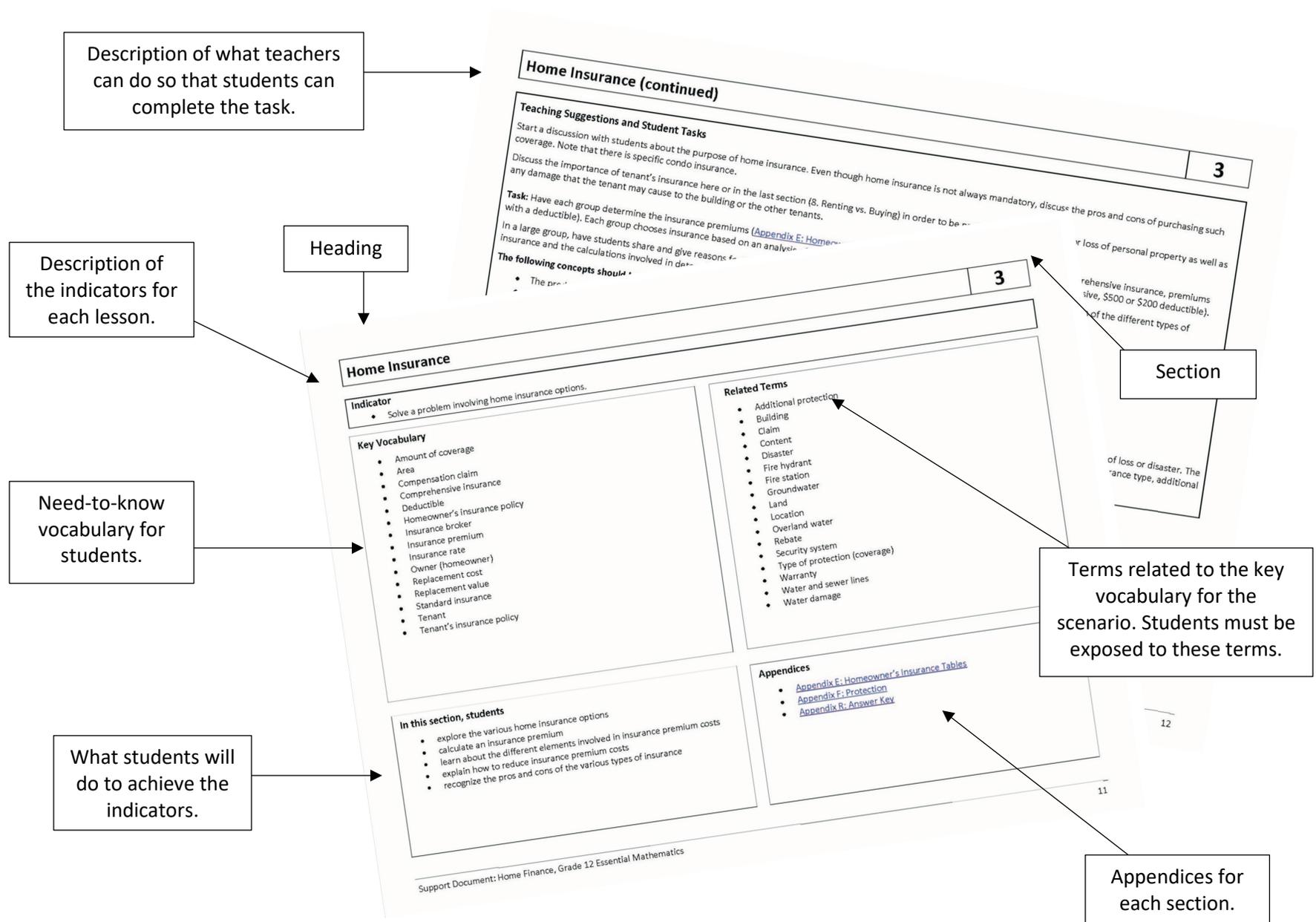


Overview



Indicator

This section is an introductory activity and is therefore not associated with an indicator.

Key Vocabulary

- Down payment
- Mortgage

Related Terms

- Affordable
- Apartment
- Budget
- Cost
- Financial planner
- Gross annual income
- Gross monthly income
- Housing (house, home)
- Income (salary)
- Job
- Neighbourhood

In this section, students

- make a connection between income and affordable housing
- discover the importance of saving to buy a house

Appendices

- [Appendix B: Jobs](#)
- [Appendix C: Questions about Jobs and Income](#)
- [Appendix R: Answer Key](#)

Teaching Suggestions and Student Tasks

Discuss the concept of affordable housing. Refer to the “Managing Money” unit in the *Essential Mathematics 30S* course, in which students studied personal budgets.

To involve students more actively and allow them to make informed decisions, create a scenario for each student by handing out cards containing income information for a given job ([Appendix B: Jobs](#)).

Task: Students must each answer a series of questions ([Appendix C: Questions about Jobs and Income](#)) prompting them to think about their budget, financially exploring what they can afford with their income and how to get there. These questions could be the starting point for a class discussion.

At this point, the students may decide to work alone or in groups of 2 or 3 who will share a home and the costs.

Indicator

This section is an introductory activity and is therefore not associated with an indicator

Key Vocabulary

- Area
- Assessed value
- Condo fees
- Frontage
- Heating costs
- Home insurance
- Local improvement levy
- Municipal mill rate
- Property tax
- Replacement value
- School mill rate
- Total area

Related Terms

- Common area
- Condominium (condo)
- Content
- Open house
- Private sale
- Property
- Real estate
- Renovations

In this section, students

- see that there are different kinds of housing
- understand that many elements must be taken into consideration before purchasing a home
- describe the features of a home

Appendix

- [Appendix D: Homes for Sale](#)

Teaching Suggestions and Student Tasks

[Appendix D: Homes for Sale](#) contains four house or condo feature sheets. Students must use the information in these sheets to determine the costs involved in purchasing a home.

There are a number of ways to approach this activity. Each group can select a sheet, or the teacher can hand out one to each group. The teacher can give more than one feature sheet to each group to encourage comparisons.

The teacher can also have the students find a house they like on a real-estate website. In doing their research, students must be sure that the following information is shown so that they can use it for the rest of the project:

- cost (required for the section on mortgages)
- address (required for the section on home insurance)
- property tax (required for the section on the GDSR)
- frontage (required for the section on municipal taxes)

Task: Have each group or student identify and describe the features of their property, such as the number of bedrooms and bathrooms, the total area, renovation costs, neighbourhood, heating costs, proximity to schools and bus routes, property tax, etc.

Indicator

- Solve a problem involving home insurance options.

Key Vocabulary

- Amount of coverage
- Area
- Compensation claim
- Comprehensive insurance
- Deductible
- Homeowner's insurance policy
- Insurance broker
- Insurance premium
- Insurance rate
- Owner (homeowner)
- Replacement cost
- Replacement value
- Standard insurance
- Tenant
- Tenant's insurance policy

Related Terms

- Additional protection
- Building
- Claim
- Content
- Disaster
- Fire hydrant
- Fire station
- Groundwater
- Land
- Location
- Overland water
- Rebate
- Security system
- Type of protection (coverage)
- Warranty
- Water and sewer lines
- Water damage

In this section, students

- explore the various home insurance options
- calculate an insurance premium
- learn about the different elements involved in insurance premium costs
- explain how to reduce insurance premium costs
- recognize the pros and cons of the various types of insurance

Appendices

- [Appendix E: Homeowner's Insurance Tables](#)
- [Appendix F: Protection](#)
- [Appendix R: Answer Key](#)

Teaching Suggestions and Student Tasks

Start a discussion with students about the purpose of home insurance. Even though home insurance is not always mandatory, discuss the pros and cons of purchasing such coverage. Note that there is specific condo insurance.

Discuss the importance of tenant's insurance here or in the last section (8. Renting vs. Buying) in order to be protected against damage or loss of personal property as well as any damage that the tenant may cause to the building or the other tenants.

Task: Have each group determine the insurance premiums ([Appendix E: Homeowner's Insurance Tables](#)) for their area (standard and comprehensive insurance, premiums with a deductible). Each group chooses insurance based on an analysis of the pros and cons of each insurance type (standard or comprehensive, \$500 or \$200 deductible).

In a large group, have students share and give reasons for their choices. During the discussion, make sure students focus on the pros and cons of the different types of insurance and the calculations involved in determining the insurance premium cost.

The following concepts should be included in the discussion:

- The predetermined insurance table (by industry) and replacement cost
- House location (area)
- The various protections (coverage) ([Appendix F: Protection](#))
- Deductible (\$500 or \$200)
- Additional protection (e.g., water damage— overland, groundwater, from water or sewer lines)
- Rebates offered (e.g., three claim-free years, security system installation, no mortgage, credit rating, etc.)

Explain the term “replacement value” used to calculate the total cost of rebuilding a home and replacing the furniture and other contents in the event of loss or disaster. The amount paid by the insurer is the replacement value minus the deductible. The rate paid by the owner is determined according to area, deductible, insurance type, additional coverage and the rebates offered.

Indicator

- Solve a problem involving mortgages.

Key Vocabulary

- Amortization period
- Amortization table
- Down payment
- Financial institution
- Home equity
- Interest paid
- Interest paid in the monthly payment
- Interest rate
- Monthly payment
- Mortgage
- Mortgage loan
- Outstanding balance
- Principal
- Principal paid in the monthly payment
- Total amount paid
- Total interest paid

Related Terms

- Biweekly payment
- Date of maturity
- Loan approval
- Lump sum payment
- Mortgage insurance
- Payment frequency
- Purchase
- Rebate
- Semi-monthly payment

In this section, students

- learn about the different mortgage options
- calculate a mortgage
 - i) interest portion of the monthly payment
 - ii) principal portion of the monthly payment
 - iii) outstanding balance
 - iv) home equity
 - v) monthly payment
 - vi) total paid over the mortgage amortization period
 - vii) total interest paid
- learn how to reduce the monthly mortgage payment
- learn how to reduce the interest paid

Appendices

- [Appendix G: Mortgages](#)
- [Appendix H: Mortgage Elements](#)
- [Appendix R: Answer Key](#)

Teaching Suggestions and Student Tasks

For the following tasks, students will compare the impact of different down payments, interest rates, and amortization periods for their home. [Appendix G: Mortgages](#) contains the formulas for the calculations in this section as well as the mortgage amortization table.

Task A: Have each group determine for their house the mortgage amount, monthly payment, total amount paid, and total interest paid with down payments of \$15,000, \$20,000 and \$30,000 for a mortgage amortized over 25 years at an interest rate of 4%.

Task B: Using the data for a \$20,000 down payment, have each group determine and compare for their home a 15-year mortgage with a 4% interest rate and a 20-year mortgage at an interest rate of 4%. The group should focus on the mortgage amount, monthly payment, total amount paid, and total interest paid.

Task C: Using the data for a \$20,000 down payment, have each group determine and compare for their home a 25-year mortgage at an interest rate of 6% and a 25-year mortgage at an interest rate of 8%. The group should focus on the mortgage amount, monthly payment, total amount paid, and total interest paid.

Have each group compare and discuss the pros and cons of the different down payment amounts, amortization periods, and interest rates. They can then decide which mortgage to choose, based on their budget, and give reasons for their choice.

Have each group prepare an amortization table for at least four monthly periods for their mortgage choice. This should be done by hand with a calculator and then checked using technology.

In a large group, have the students compare the monthly mortgage payment, total amount paid, and total interest paid. Ask students how they can reduce the monthly payment, interest paid, and the loan term.

The following are a few options:

- Change the down payment amount
- Change the interest rate
- Change the amortization period
- Change the payment frequency
- Make lump sum payments

Discuss the pros and cons of each option and also mention fixed- and variable-rate mortgages and the different payment frequencies.

Use financial institution websites or [Appendix H: Mortgage Elements](#) to discuss what happens when an element used for mortgage calculations changes.

Indicator

- Determine the economic feasibility of a home purchase using the Gross Debt Service Ratio.

Key Vocabulary

- Condo fees
- Down payment
- Gross Debt Service Ratio (GDSR)
- Gross monthly family (household) income
- Heating costs
- Income
- Interest rate factor
- Monthly payment
- Property tax

Related Terms

- Affordable
- Cash purchase
- Expenses
- Household (family) budget
- Purchase

In this section, students

- calculate the GDSR
- learn about the maximum acceptable GDSR
- understand the implications if the GDSR is close to or exceeds 32%
- calculate the maximum affordable house price
- learn ways to lower the GDSR

Appendix

- [Appendix I: Affordability](#)

Teaching Suggestions and Student Tasks

Present and explain the GDSR formula to students.

$$\text{GDSR} = \frac{\left(\begin{array}{c} \text{monthly} \\ \text{mortgage} \\ \text{payment} \end{array} \right) + \left(\begin{array}{c} \text{monthly} \\ \text{property} \\ \text{taxes} \end{array} \right) + \left(\begin{array}{c} \text{monthly} \\ \text{heating} \\ \text{costs} \end{array} \right)}{\text{gross monthly income}} \times 100$$

Students should understand why each element in the formula is important and that the calculations are based on monthly (vs. annual) amounts. To qualify for a mortgage, the GDSR should not exceed 32%. Have the group brainstorm what could happen if the GDSR is close to or exceeds 32%. Teachers can talk with students about mortgage rates, how they are regularly renegotiated over the amortization period (e.g., at 2, 3, or 5 years) and how they can change during this term. Students make a connection between higher mortgage rates and higher monthly payments (and therefore GDSR).

Task A: Have each student or group calculate the GDSR based on their individual income provided in section 1 (Jobs and Income) and one of the mortgages calculated in section 4 (Mortgages).

Students must make decisions to keep their GDSR under 32%.

N. B.: Based on the jobs and incomes presented in section 1 (Jobs and Income) and the houses in section 2 (Choosing a Home), the condominium is the only affordable housing option (with a GDSR below 32%) for a single-income family. Students will realize how difficult it is to pay for a home on a single income.

Task B: Have each student or group determine the maximum affordable mortgage amount based on their income ([Appendix I: Affordability](#)) and the following data:

Annual Property Tax: \$2,500
Interest Rate: 4.5%

Monthly Heating Costs: \$75
Down Payment: \$15,000

Task C: Have each student or group calculate the maximum affordable mortgage for a condominium based on the following data:

Annual Property Tax: \$1250
Interest Rate: 4.5%
Condo Fees: \$250

Monthly Heating Costs: \$75
Down Payment: \$15 000

Task D: Have each student or group write down various ways of lowering the GDSR for their home.

N.B.: "Different ways" means that only one activity per formula element may be given. For instance, students may not give installing a programmable thermostat and new insulation as two different ways, because both lower heating costs.

In a large group, encourage students to share the different ways of lowering the GDSR by examining each of the formula elements involved in the GDSR calculation. Then have each group determine the GDSR based on the other mortgages obtained in the previous activity. Lead discussions on the impact of mortgage payments, the pros and cons of combining income, and the value of sharing responsibility for a house.

Indicator

- Describe the costs involved in purchasing a home, such as closing costs, land transfer tax, lawyer's fees, house insurance, and moving expenses.

Key Vocabulary

- Additional cost
- Adjustment
- Appliances
- Building inspection
- Closing costs
- Down payment
- Goods and services tax (GST)
- Immediate repairs
- Initial costs
- Insurance adjustment
- Interest adjustment
- Land transfer tax
- Lawyer's fees
- Mandatory cost
- Moving expenses
- One-time cost
- Optional cost
- Property survey
- Property tax adjustment
- Provincial sales tax (PST)
- Service charges
- Survey certificate
- Utility hook-up

Related Terms

- Administration costs
- Building inspector
- Decorating costs
- Furniture
- Land surveyor
- Land title
- Property value
- Reimbursement
- Renovations
- Seller
- Title search

Appendices

- [Appendix J: Initial Costs](#)
- [Appendix K: Land Transfer Tax](#)
- [Appendix R: Answer Key](#)

In this section, students

- identify and describe the costs involved in purchasing a home
- calculate the land transfer tax (real estate purchases)
- identify mandatory and optional costs
- identify the costs involved in purchasing a new home

Teaching Suggestions and Student Tasks

Task A: Cut out and distribute words from the initial costs vocabulary ([Appendix J: Initial Costs](#)) to students. Have students use definitions to sort the terms into the two “mandatory” and “optional” categories and give reasons for their choices. Discuss the pros and cons of each optional cost. Are some optional costs more important than others? Why?

Start a discussion on the mandatory and optional costs related to purchasing a new home.

Task B: Have each group determine the land transfer tax for their property ([Appendix K: Land Transfer Act](#)).

Indicators

- Discuss the difference between preventative maintenance and emergency repair costs.
- Discuss the daily costs involved with home maintenance.

Key Vocabulary

- Daily cost
- Daily maintenance
- Emergency repair
- Inspection
- Preventative maintenance

Related Terms

- Attic
- Backflow valve
- Carbon dioxide (CO₂) detector
- Chimney
- Chimney cracks
- Cleaning
- Eavestrough
- Energy improvement
- Estimate
- Furnace
- Handrail (banister)
- Heating system
- Heating system filter
- Hot water tank
- Insulation
- Leak
- Light bulb
- Neglect
- Plastic tarp
- Roof
- Roofing shingle
- Service call
- Smoke detector
- Tap (faucet)
- Updated wiring
- Vent
- Weather stripping

In this section, students

- learn to differentiate between daily maintenance, preventative maintenance, and emergency repair costs
- make a connection between daily maintenance, preventative maintenance, and emergency repair costs

Appendices

- [Appendix L: Maintenance—Situations](#)
- [Appendix M: Maintenance—Examples](#)

Teaching Suggestions and Student Tasks

Task: Cut out and distribute the home maintenance situations ([Appendix L: Maintenance—Situations](#)) to students and ask them to sort them according to the type of maintenance required for each situation: daily or preventative maintenance, or emergency repair. Then have the students discuss the importance of these tasks in a group. [Appendix M: Maintenance—Examples](#) contains maintenance examples. Students will make a connection between the cost difference between preventative maintenance and an emergency repair. Use the two examples below to start a discussion and highlight the consequences of failing to perform preventative maintenance.

<p>Example 1: Suggestions for discussion</p> <ul style="list-style-type: none"> • What are the consequences of not heating your home in the winter? • What is the difference between the cost of a scheduled furnace inspection and cleaning, and the cost of the same services following an emergency call? • An annual furnace inspection and cleaning identifies any required maintenance to avoid unforeseen repairs. A \$1,000 repair is equal to how many years of inspection and cleaning? 	<p>Example 2: Suggestions for discussion</p> <ul style="list-style-type: none"> • Why should you get several estimates before having your shingles replaced? • Why should you hire a reliable company with a good reputation? • Why should you immediately replace a leaking roof? • Why is it recommended to replace roofing shingles that start to curl?
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	Preventative Maintenance	Emergency Repair	Preventative Maintenance	Emergency Repair
Situation	The furnace is making a banging noise and dust is coming out of the vents.	It’s winter and -40°C outside, and the furnace breaks down.	The shingles on the roof are beginning to curl.	During a bad storm, the strong wind blows some shingles off the roof and water starts coming into the house.
What To Do	The owner should schedule a furnace inspection and cleaning with an HVAC (heating, ventilation, air conditioning) company.	The owner should contact an HVAC company immediately, regardless of the day or time, to have the furnace inspected, repaired, and possibly replaced. In the meantime, the owner should find a way to keep the house warm to prevent the pipes from freezing (e.g., small heaters).	The owner should contact several companies to get a shingle replacement cost estimate. The owner then chooses a reliable company with a reasonable cost estimate (estimates can differ by several thousands of dollars, depending on shingle quality) and date.	First, the roof should be covered with a plastic tarp to prevent water from coming into the house. Next, the owner should contact several companies to determine their availability and the repair cost.
Related Costs	A furnace inspection and cleaning costs around \$150. This price includes the service call but not replacement parts, if required.	A basic \$100 service call cost does not cover inspection, repair, cleaning, etc. Repair costs can range from around \$200 to more than \$1,000. The average furnace replacement cost is approximately \$4,000.	The owner receives three estimates <ul style="list-style-type: none"> • \$4,000 (no references; available in 4 weeks) • \$5,000 (excellent reputation; available in 4 weeks) • \$7,000 (reliable company; available immediately) He chooses the company with the best reputation that charges \$5,000.	The owner starts by paying for the plastic tarp, which costs \$100. Given that water entered the house, he must also clean, repair, and replace everything that was damaged (involves an insurance claim). Because the forecast is for more bad weather, he cannot afford to wait four weeks to have the roof repaired and must use the company asking \$7,000 that can start right away.

Indicator

- Determine the property tax for a house.

Key Vocabulary

- Assessed value
- Frontage
- Local improvement levy
- Mill rate
- Mills
- Municipal mill rate
- Portioned value
- Property tax credit
- School mill rate
- Tax rate
- Total portioned value

Related Terms

- Asphalt surface roadways
- Assessment information
- Boulevard construction
- Building
- Concrete sidewalk
- Concrete street pavement
- Land
- Land drainage system
- Lane lighting
- Lane oiling
- Lane pavement
- Lane surfacing
- Ornamental lighting
- Septic field
- Sewer renewal
- Utilities
- Waste renewal
- Water-main installation
- Well

In this section, students

- learn about the four property tax components
 - portioned value
 - school taxes
 - municipal taxes
 - property tax credit(s)
- determine the total property tax due

Appendices

- [Appendix N: Property Tax](#)
- [Appendix R: Answer Key](#)

Teaching Suggestions and Student Tasks

Ensure that students understand that improvements are sometimes taxed, and that adding improvements increases the property tax.

Students must be familiar with the four components of the property tax calculation.

- 1) Portioned value
- 2) School taxes
- 3) Municipal taxes, including local improvements (condominium frontage is a percentage of the building frontage)
- 4) Provincial credit(s)

The following example is provided to demonstrate the calculations.

A property with a house with a combined value of \$266,000 has a portioned value of 45% and frontage of 60 feet. The municipal tax rate is 13.01 mills. Ornamental street lighting is going to be installed, so there is a cost for local improvements. The school taxes are 15.90 mills and there is a provincial credit of \$750. Calculate the total property tax for this house.

Lead a discussion on the cost of property improvements and the costs related to these services. Discuss services that are paid with municipal taxes and the connection between school divisions and school taxes.

- **Portioned Value:** Portioned value = assessed value \times tax rate

$$= 266,000 \times 0.45$$

$$= \$119,700$$
- **Total School Taxes:** School taxes = $\frac{\text{portioned value}}{1,000} \times \text{mill rate}$

$$= \frac{119,700}{1,000} \times 15.90$$

$$= \$1,903.23$$
- **Total Municipal Taxes:** Municipal taxes = $\left(\frac{\text{portioned value}}{1,000} \times \text{mill rate} \right) + (\text{frontage} \times \text{improvement rate})$

$$= \left(\frac{119,700}{1,000} \times 13,010 \right) + (60 \times 14.28)$$

$$= 1,557.30 + 856.80$$

$$= \$2,414.10$$
- **Total Net Property Taxes:** Net property taxes = school taxes + municipal taxes – provincial credit(s)

$$= 1,903.23 + 2,414.10 - 750.00$$

$$= \$3,567.33$$

N.B.: Common errors

- Forgetting to calculate the portioned value
- Forgetting to divide the mill rate by 1000
- Multiplying the improvement rate by the portioned value

Task: Have each group do the calculation to justify the property tax amount ([Appendix N: Property Tax](#)) indicated on the house's feature sheet.

Indicator

- Discuss energy efficient options and the immediate and long-term impact on your housing costs.

Key Vocabulary

- Energy efficiency
- Energy efficiency improvements (upgrades)

Related Terms

- Attic
- Electric heating system
- Furnace
- Geothermal heating system
- Heat loss
- Heating costs
- Heating system
- High efficiency furnace
- Natural gas heating system
- Non-renewable energy
- Renewable energy
- Roof
- Weather stripping

In this section, students

- identify energy efficient options
- calculate the immediate and long-term costs of energy efficient options
- describe and explain the pros and cons of the various energy efficient options
- make a decision about an energy efficient option based on the immediate and long-term costs.

Appendices

- [Appendix O: Energy Efficiency](#)
- [Appendix R: Answer Key](#)

Teaching Suggestions and Student Tasks

Start a discussion on the various energy efficient options.

Some examples include the following:

- High efficiency furnace
- Attic insulation
- Replacing windows
- High efficiency appliances
- CFL (compact fluorescent lamp) and LED (light-emitting diode) bulbs

Task: Have students compare three kinds of heating systems (geothermal, natural gas, and electric) to learn more about the costs such as purchase price and operating costs ([Appendix O: Energy Efficiency](#)). Students can then use these calculations to answer the questions and discuss energy efficient options.

Indicator

- Compare the benefits of owning and renting a house.

Key Vocabulary

- Amount of coverage
- Area
- Comprehensive insurance
- Deductible
- Down payment
- Lease
- Purchase
- Rent
- Rental
- Standard insurance
- Tenant's insurance

Related Terms

- Heating
- Maintenance
- Owner
- Tenant

In this section, students

- explore the pros and cons of renting a house
- explore the pros and cons of buying a house
- learn about the costs associated only with renting
- learn about the common costs for renting and buying a house
- explore the reasons why a person might decide to purchase a house
- explore the reasons why a person might decide to rent a house

Appendices

- [Appendix P: Homes for Rent](#)
- [Appendix Q: Tenant Insurance Table](#)

Teaching Suggestions and Student Tasks

Start a discussion with students on the differences and similarities between renting and purchasing the same home.

With students, compile a list of financial and personal considerations that might influence the decision to purchase or rent a house.

Examples include the following:

- Rent amount
- What is included in the rent
- Insurance cost
- The amount of money required to make a down payment (purchase) or available for investing (rental)
- Lifestyle (e.g., pets)
- The type and amount of maintenance the person is prepared to do
- The time (months, years) the person plans to live in the property.

Task: Hand each group the rental sheet for their property ([Appendix P: Homes for Rent](#)). Have each group calculate the monthly costs involved in renting their home. These costs include rent, heating, and insurance. There are four possible insurance calculations: standard and comprehensive insurance, and \$500 and \$200 deductible. To compare the monthly rental costs with purchase costs, each group must take out the same insurance type as in the home insurance section ([Appendix Q: Tenant's Insurance Table](#)).

Using the "Homes for Rent" feature sheet, have each group describe and explain the pros and cons of buying and renting a home. Have each group decide whether to buy or rent their home and give the reasons for their decision.

In a large group, discuss the reasons why some people prefer to rent versus buy and vice versa. Explore the idea of investing the money saved by renting rather than buying a house.