

- B. **Journalize the five transactions again under an HST system.** The rate of HST is 13%. Ignore all references to GST and PST.
- C. The total tax percentages were the same in Parts A and B above (13%). Therefore, you can make some comparisons between the GST/PST system and the HST system by answering the following questions:
- From examining the journal entries for the three sales invoices, what accounts have the same amounts under the two systems?
  - Why was the amount owed to Bell Cellphones smaller under the GST/PST system?
  - Why was the Office Supplies Expense amount smaller under the HST system?

### Section 6.3 ► Communicate It

You work for McKill's Consulting as an accountant. The owner, Mr. Gary McKill, is an employer who has a little knowledge of accounting. He notices one of your journal entries for a purchase of \$1500 of supplies on account. In an email, he challenges the correctness of the entry because you debited Supplies for \$1500, debited HST Recoverable for \$195, and credited Accounts Payable for \$1695.

From reading a recent tax bulletin, Mr. McKill knows that HST amounts charged to his business actually earn something called Input Tax Credits. Therefore, he maintains that there should be an account titled Input Tax Credits. He adds that this account should have been credited for \$195 when supplies were purchased.

In your Workbook, compose an email response to your employer. Politely defend your accounting entry and explain to him what he needs to know about Input Tax Credits. Include in your response why you think the government uses the title of Input Tax Credits. Use T-accounts to clarify your explanation.

### 6.4 ► Building a Spreadsheet Model for Sales Tax Decisions

Accountants and accounting clerks frequently use computers to do their work. When they are not entering debits and credits using computer accounting programs, accounting personnel turn to spreadsheets as the software of choice. Spreadsheets give accountants great flexibility when analyzing numbers and predicting future financial results. Therefore, being able to quickly build efficient spreadsheet models is a necessary skill.

Suppose Tabitha Ewert, the accountant for Rendal Painting in Langley, BC, wanted to predict the impact that proposed changes to sales tax regulations would have on the business's cash flow. The provincial government was considering a move from a GST/PST sales tax system (5% and 7% respectively) to a 12% HST system.

Tabitha used Excel to build the spreadsheet model shown in Figure 6.15.

Sales Tax Projections										Rental Painting
	Sales	Purchases	PST Portion	GST Payable	GST Recoverable	GST Remittance	HST Payable	HST Recoverable	HST Remittance	
January	200,000	80,000	5,600	10,000	4,000	6,000	24,000	9,600	14,400	
February	220,000	88,000	6,160	11,000	4,400	6,600	26,400	10,560	15,840	
March	242,000	96,800	6,776	12,100	4,840	7,260	29,040	11,616	17,424	
April	278,300	111,320	7,792	13,915	5,566	8,349	33,396	13,358	20,038	
May	320,045	128,018	8,961	16,002	6,401	9,601	38,405	15,362	23,043	
June	368,052	147,221	10,305	18,403	7,361	11,042	44,166	17,666	26,500	
July	441,662	176,665	12,367	22,083	8,833	13,250	52,999	21,200	31,800	
August	529,995	211,998	14,840	26,500	10,600	15,900	63,599	25,440	38,160	
September	635,993	254,397	17,808	31,800	12,720	19,080	76,319	30,528	45,792	
October	445,195	178,078	12,465	22,260	8,904	13,356	53,423	21,369	32,054	
November	311,637	124,655	8,726	15,582	6,233	9,349	37,396	14,959	22,438	
December	218,146	87,258	6,108	10,907	4,363	6,544	26,177	10,471	15,706	
	<b>4,211,025</b>	<b>1,684,410</b>	<b>117,909</b>	<b>210,551</b>	<b>84,220</b>	<b>126,331</b>	<b>505,323</b>	<b>202,129</b>	<b>303,194</b>	

Summary		GST		HST	
	GST Cash Debits	210,551		HST Cash Debits	505,323
	GST Cash Credits	126,331		HST Cash Credits	303,194
	GST Net Cash Debits	84,220		HST Net Cash Debits	202,129
				Plus PST Cost Savings	117,909
	Total Effect on Cash	84,220		Total Effect on Cash	320,038
				Difference	235,817

**Figure 6.15**

A summary report for various data related to GST

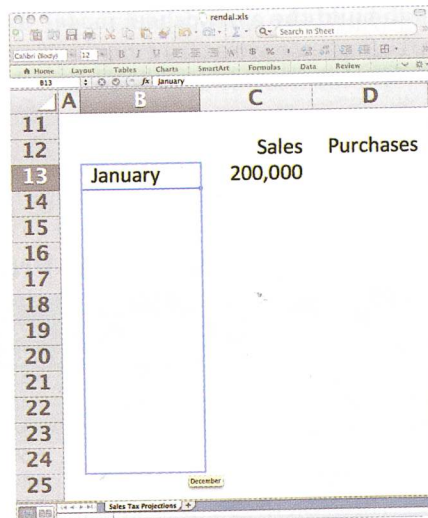
The model shows an increase to Cash of \$235 817, if a 12% HST system is implemented. This projected amount is based on several of Tabitha's assumptions. If she chooses to change those assumptions, all she has to do is enter one or two different values into designated cells and amounts throughout the model will change.

The model may at first seem complex, but you will be able to build a similar model and add to your spreadsheet skills by following the instructions that follow.

### Entering Data with AutoFill

Open the Excel workbook file named *rendal.xls*. Some labels and data have been entered for you, and a few cell formats have been applied. At cell B13, the label of January is already entered. When you click B13 to make it the active selection, you will notice a small square at the bottom right of the cell. This is the AutoFill "handle." Move the cell pointer so that it hovers over the AutoFill handle. The cell pointer will change from a hollow cross to a solid cross. When the solid cross appears, drag your mouse straight down to cell B24. Your screen should look like Figure 6.16 on the next page.





**Figure 6.16**

Using the AutoFill feature to enter the months of the year



As with most spreadsheet techniques and features covered in this text, you can see an online demonstration of the AutoFill capabilities of Excel at the *Accounting I* website.

When you release the mouse, you will see that Excel has entered the remaining months of the year for you, eliminating the need to type them. The AutoFill feature is great at recognizing all sorts of data sequences and then filling in new data in adjacent cells. In this case, the only piece of data needed was the name of the first month. Excel supplied the names of the remaining 11 months.

### Copying with Absolute Cell References

In Chapter 5, you copied cells that contained relative cell references. You discovered that relative cell references change when copied to new locations. Sometimes when building formulas, you do not want cell references to change when copied. In this case, you need to use an **absolute cell reference** which is one that will not change when copied to new locations.

The first formula you need to build in this model will contain both a relative cell reference and an absolute cell reference. The formula will help forecast sales for the coming year.

Notice the model has a Variable Data area near the top of the sheet. Some of these cells contain Tabitha's basic assumptions for building her financial projections. For example, Tabitha noticed that in the first three months of a year, sales for Rental Painting usually increase by about 10% from one month to the next. This rate of increase grows by 15% in the spring, peaks at 20% in the summer, and falls by negative 30% per month during the winter.

Tabitha's assumptions are entered in cells C4 to C7. Move the cell pointer to C14. Enter the formula to project the dollar amount of February's sales. The formula at C14 should be as follows:

$$=C13*(1+CS$4)$$

This formula instructs the spreadsheet to multiply the contents of cell C13 (January's sales of \$200 000) by the sum of 1 plus the value in C4. In other words, multiply by 110%.

The dollar signs in the C4 reference have no influence on the result shown at C14. Their purpose is to turn C4 into an absolute cell reference. The dollar signs ensure that, when copied to new locations, this reference will continue to point to the value in C4. Absolute cell references do not change when copied.

When building spreadsheet formulas, try to use the cell pointer to identify cell references instead of typing them. Also, when creating absolute cell references, the keyboard shortcuts are handy (F4 for Windows® operating system, Command-T for Mac OS® operating system). Until you are comfortable with the shortcuts, you can continue to type \$ signs when you want to create an absolute cell reference.

Copy the formula at cell C14 to C15. The result for March should be \$242 000. For April, May, and June change the absolute cell reference from \$C\$4 to \$C\$5. Repeat this pattern for the remaining months. When completed, the spreadsheet results and the cell contents should match Figure 6.17 below.

Variable Data			Variable Data		
Projections		Sales	Projections		Sales
Jan to Mar		10%	Jan to Mar	0.1	
Apr to Jun		15%	Apr to Jun	0.15	
Jul to Sep		20%	Jul to Sep	0.2	
Oct to Dec		-30%	Oct to Dec	-0.3	

RESULTS			FORMULAS		
		Sales			Sales
January		200,000	January		200000
February		220,000	February		=C13*(1+\$C\$4)
March		242,000	March		=C14*(1+\$C\$4)
April		278,300	April		=C15*(1+\$C\$5)
May		320,045	May		=C16*(1+\$C\$5)
June		368,052	June		=C17*(1+\$C\$5)
July		441,662	July		=C18*(1+\$C\$6)
August		529,995	August		=C19*(1+\$C\$6)
September		635,993	September		=C20*(1+\$C\$6)
October		445,195	October		=C21*(1+\$C\$7)
November		311,637	November		=C22*(1+\$C\$7)
December		218,146	December		=C23*(1+\$C\$7)

Relative cell references, absolute cell references, and decimal equivalents on the right are used to produce the results shown on the left.

**Figure 6.17**

The relative and absolute cell references in the formulas needed to project sales

As you can see on the right side of Figure 6.17, the formulas use relative cell references that change when copied, as well as absolute cell references that stay constant when copied. On the left side, the answers are formatted to zero decimal places for you, a feature that was done in advance.

### Completing the Monthly Projections

You can now complete the remaining monthly projections very quickly. For each column, enter the correct formula for January, grab the AutoFill handle, and drag it down to December. Figure 6.18 (on the next page) shows the correct January formulas with explanations. Enter those formulas now and fill them down to December.



**Figure 6.18**

Formulas for the first row of monthly projections—row 13

<b>D13</b> Purchases $=D\$4*C13$ Tabitha estimates the cost of supplies to be 40% of sales, before PST.	<b>E13</b> PST Portion $=D13*\$F\$4$ PST adds 7% to the cost of Purchases.	<b>F13</b> GST Payable $=C13*\$G\$4$ 5% of Sales belongs to the Canada Revenue Agency.	<b>G13</b> GST Recoverable $=D13*\$G\$4$ Rental Painting gets a credit of 5% of its purchases.
<b>H13</b> GST Remittance $=F13-G13$ Represents the amount of the GST cheque to Ottawa.	<b>I13</b> HST Payable $=C13*\$H\$4$ 12% of Sales goes to the CRA and the province.	<b>J13</b> HST Recoverable $=D13*\$H\$4$ Rental Painting gets a credit of 12% of its purchases.	<b>K13</b> HST Remittance $=I13-J13$ Represents the amount of the HST cheque for the CRA and the province.

Use the AutoSum button to calculate a yearly total at C25. Then drag the AutoFill handle to copy this SUM function across columns to K25. Check your totals with the ones shown in Figure 6.15 on page 209.

### Completing the Summary Section

The purpose of the next section of the spreadsheet is to summarize the sales tax projections to determine the impact they will have on cash. In your spreadsheet model, enter the cell references and formulas you see in Figure 6.19.

**Figure 6.19**

The cell references and formulas for the Summary section

	A	B	C	D	E	F	G	H
27		Summary		GST			HST	
28				GST Cash Debits	$=F25$		HST Cash Debits	$=I25$
29				GST Cash Credits	$=H25$		HST Cash Credits	$=K25$
30				GST Net Cash Debits	$=E28-E29$		HST Net Cash Debits	$=H28-H29$
31							Plus PST Cost Savings	$=E25$
32				Total Effect on Cash	$=E30$		Total Effect on Cash	$=H30+H31$
33							Difference	$=H32-E32$
34								

Tabitha's reasoning is fairly evident. For example, the calculation in column H starts with HST cash debits. This amount represents tax collected from customers and deposited in the business's bank account. The cash credits—the HST remittance cheques—are then subtracted from the deposits. The PST charged under the old system is removed, so this represents a cash savings. Finally, the effect on cash under the PST/GST system in column E is subtracted. The result of this logic is that the business's cash account will receive an increase of \$235 817 if the HST system is implemented.

## Formatting the Spreadsheet Model

Excel has many preset formats for tables like the one Tabitha Ewert prepared. You can try using some of them, but the format shown in Figure 6.15 was original. There is no need to match the exact look of Tabitha's spreadsheet, but here are some of the formatting techniques used.

- The Fill paint bucket was used for the two shades of blue.
- Many of the cell labels were right-aligned in order to line up with numbers in the same column.
- Significant labels and totals were boldfaced and set in white.
- Some type sizes were increased.
- Some underlining was used in the Summary section.
- The two sections of the model were outlined.

Be sure to save your impressive projection model. You will use it again in the Section Exercise below.

## Review Questions

◀ Section 6.4

1. What is the main purpose of the AutoFill feature?
2. How many beginning cells does the AutoFill feature need to fill in a list of months?
3. What is an absolute cell reference?
4. Describe the methods you can use to make a cell reference absolute.

## Exercises

◀ Section 6.4

1. The power of a spreadsheet model is seen when you ask it “what-if” questions. **Load the *rendal.xls* file and duplicate the sheet that holds the sales tax projections.** The quickest way to duplicate a sheet is to press the Control key (Windows) or the Option key (Mac OS) and drag the tab to the right. On this duplicated sheet, make the following changes in the Variable Data area.
  - A. The owner asks, “What if the higher rate of HST drives away customers?” **Therefore, in cells C4 to C7, make each percentage projection more pessimistic by 2%. Also, change the value of January’s projected sales to \$196 000 in cell C13.**
  - B. The owner also asks, “What if our suppliers do not give us all the financial benefits gained from eliminating the PST? They might take a portion for themselves through higher prices.” **Therefore, change the PST Factor in cell F4 from 7% to 4%.**
  - C. Use cells in the new sheet to create formulas revealing the impact that the responses to the owner’s “what-if” questions had on projected cash. In an area below your numbers, write a few sentences to explain your findings.