ED 373 234 CE 067 068

TITLE Financial Analysis. Unit 18. Level 2. Instructor

Guide. PACE: Program for Acquiring Competence in

Entrepreneurship. Third Edition. Research &

Development Series No. 302-18.

INSTITUTION Ohio State Univ., Columbus. Center on Education and

Training for Employment.

PUB DATE 94

NOTE 35p.; For the complete set, i.e., 21 units, each done

at three levels, see CE 067 029-092. Supported by the

International Consortium for Entrepreneurship

Education, the Coleman Foundation, and the Center for

Entrepreneurial Leadership Inc.

AVAILABLE FROM Center on Education and Training for Employment, 1900

Kenny Road, Columbus, OH 43210-1090 (order no. RD302-18 IG, instructor guide \$4.50; RD302-18 M, student module, \$3; student module sets, level 1--RD301M, level 2--RD302M, level 3--RD303M, \$45 each; instructor guide sets, level 1--RD301G, level 2--RD302G, level 3--RD303G, \$75 each; 3 levels and

resource guide, RD300G, \$175).

PUB TYPE Guides - Classroom Use - Teaching Guides (For

Teacher) (052) -- Guides - Classroom Use - Instructional Materials (For Learner) (051)

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS *Accounting; Behavioral Objectives; *Business

Education; *Competency Based Education; Computer

Oriented Programs; Decision Making;

*Entrepreneurship; Learning Activities; Money Management; Postsecondary Education; Secondary Education; *Small Businesses; Spreadsheets; Student

Evaluation; Teaching Guides

IDENTIFIERS *Financial Analysis; *Program for Acquiring

Competence Entrepreneurship

ABSTRACT

This instructor guide for a unit on financial analysis in the PACE (Program for Acquiring Competence in Entrepreneurship) curriculum includes the full text of the student module and lesson plans, instructional suggestions, and other teacher resources. The competencies that are incorporated into this module are at Level 2 of learning-planning for a business in one's future. Included in the instructor's guide are the following: unit objectives, guidelines for using PACE, lists of teaching suggestions for each unit objective/subobjective, model assessment responses, and overview of the three levels of the PACE program. The following materials are contained in the student's guide: activities to be completed in preparation for the unit, unit objectives, student reading materials, individual and group learning activities, case study, discussion questions, assessment questions, and references. Among the topics discussed in the unit are the following: the entrepreneur's role in managing finances; balance sheet components (assets, liabilities, and net worth); income statements and their components; variations in income statements across businesses; methods of accounting for depreciation (straight-line, declining balance, and sum-of-the-year-digits depreciation); the purposes and preparation of cash forecasts; break-even analysis; and roles of advisers and computers in financial analysis decisions. Ten figures/sample forms are included. (MN)

Objectives:

- Discuss the role of the entrepreneur in managing finances.
- Explain how to prepare a balance sheet.
- Explain how to prepare an income statement.
- Explain how to develop a cashflow projection.
- Explain how to determine the break-even point.
- Identify the use of advisors in the financial decisions.
 - Discuss the use of computers in financial analysis.

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INSTRUCTOR GUIDE

Unit 18 **Financial Analysis** Level 2

HOW TO USE PACE

- Use the objectives as a pretest. If a student is able to meet the objectives, ask him or her to read and respond to the assessment questions in the back of the module.
- Duplicate the glossary from the Resource Guide to use as a handout.
- Use the teaching outlines provided in the Instructor Guide for assistance in focusing your teaching delivery. The left side of each outline page lists objectives with the corresponding headings (margin questions) from the unit. Space is provided for you to add your own suggestions. Try to increase student involvement in as many ways as possible to foster an interactive learning process.
- When your students are ready to do the Activities, assist them in selecting those that you feel would be the most beneficial to their growth in entrepreneurship.
- Assess your students on the unit content when they indicate they are ready. You may choose written or verbal assessments according to the situation. Model responses are provided for each module of While these are suggested each unit. responses, others may be equally valid.

1. DISCUSS THE ROLE OF THE ENTREPRENEUR IN MANAGING FINANCES

What is the entrepreneur's role in managing the finances?

Ask students to offer their understanding of the entrepreneur's role in monitoring and managing business finances. Use a chalkboard of an overhead to create a list with the issues raised by your students. Complete this list with additional financial management functions not mentioned by students.

2. EXPLAIN HOW TO PREPARE A BALANCE SHEET

What are the components of the balance sheet?

Ask students to list the three main components of the balance sheet (i.e., assets, liabilities, and owner's equity) and explain the fundamental accounting equality underlying this statement (i.e., Assets = Liabilities + Owner's Equity). Highlight the fact that the balance sheet is a "snapshot in time" of the company's performance. Use Figure 1 in this level to explain the meaning of the words "as of date."

What are assets?

Ask students to define the concept of assets in their own words. Classify assets in current and fixed, tangible and intangible, and other assets. Ask students to give examples of each category. Discuss the concept of goodwill and give examples.

What are liabilities?

Ask students to define the concept of liabilities and classify liabilities in current and long-term. Help students to provide examples for each type of liability. Encourage students to use note cards to record definitions of newly introduced concepts.

What is net worth?

Define the concept of net worth and show its importance to the entrepreneur. Highlight the double function of net worth (i.e., (1) to show the business's performance in terms of return on investment, and (2) to provide a "cushion" to investors for possible losses).

3. EXPLAIN HOW TO PREPARE AN INCOME STATEMENT

What is an income statement?

Use the income statement provided in the text to assist students in defining the concept of profit and loss statement. Emphasize the difference between income statement and balance sheet. Explain the meaning of the words "Income Statement for the period . . . " and "Balance Sheet as of date . . . "



Objectives

Teaching Suggestions

What are the components of an income statement?

Ask students to explain in their own words the mechanics of developing an income statement. Define the concepts of sales revenue, cost of goods sold, net sales, gross billings, gross profit or gross margin, selling and operating expenses, depreciation, etc. Encourage students to use note cards to record these definitions.

How do income statements vary across types of businesses?

Explain the difference between accounting for cost of goods sold in retailing and manufacturing. Use an overhead or chalkboard to list additional costs that are included in the 'cost of goods sold' account for manufacturing businesses.

What are some methods of accounting for depreciation?

Invite an accountant to speak about various methods to account for depreciation. Ask the speaker to define the concept of depreciation followed by a brief outline of the three depreciation methods (straight line, declining balance, and sum of the year digits). Also, ask the speaker to explain the double entry (debit-credit) system and how this system is translated in terms of depreciation (depreciation expense and allowance for depreciation accounts).

How is straight-line depreciation computed?

Refer to the above suggestion. Suggest the accountant explain the straight-line depreciation formula and give an example.

How is declining-balance depreciation computed?

Refer to the above suggestion. Ask the speaker to explain the tax regulations related to this depreciation method (i.e., salvage value is considered to have zero value).

How is the sum-of-the-year-digit depreciation computed?

Refer to the above suggestion. Ask the accountant to speak about permissible changes in depreciation methods (i.e., the Internal Revenue Service (IRS) allows changes from double-declining depreciation method to straight-line method at all times, but any other change requires permission from the IRS).

4. EXPLAIN HOW TO DEVELOP A CASHFLOW PROJECTION

Why is a cash forecast necessary?

Explain how cashflow statements are developed. Define and explain the concept of working capital. Assess the importance of cash, accounts receivable, inventory, and accounts payable in constructing accurate cash forecasts.

How is a cash forecast prepared?

Use the cashflow forecast presented in this level to explain how cash projections should be made. Focus on assumptions underlying these projections.



5. EXPLAIN HOW TO DETERMINE THE BREAK-EVEN POINT

How is a break-even point computed?

What information is obtained from break-even analysis?

6. IDENTIFY THE USE OF ADVISORS IN THE FINANCIAL ANALYSIS DECISIONS

What advisors should be utilized when considering financial analysis decisions?

7. DISCUSS THE USE OF COMPUTERS IN FINANCIAL ANALYSIS

How can computers aid financial management?

Explain the methods of computing the break-even points using a simple numerical example like the one presented in the unit. Use the formula Break-even point = (Total fixed costs)/(Unit selling price - Unit variable costs). Use as many numerical examples as necessary to acquaint students with this method. Ask students to complete computations on their own.

Use a chalkboard or an overhead to list the types of information that can be obtained from break-even analysis (i.e., compare costs to profits at different volumes of sales, profitability of various products in the same product line, etc.). Draw a break-even chart like the one presented in Figure 6 and assist students in understanding its meaning.

List types of advisors available to entrepreneurs interested in obtaining outside financial assistance. Explain how each one of these advisors can assist the entrepreneur at various stages in the life of the business.

Ask students why they believe computers are vital in saving the entrepreneur time and money. Also, pinpoint areas where entrepreneurs can use software to improve business management (i.e., record keeping, payroll, taxes, accounts payable, accounts receivable, inventory, cost accounting in manufacturing, etc.). Use an overhead or chalkboard to list the four cost areas entrepreneurs should consider when considering to introduce computers for daily business operations. If a spreadsheet software (such as Excel, Quatro Pro, or Lotus) is available, demonstrate to students some basic operations that can be carried out (e.g., balance sheet, income statement, cashflow projections, common sizing, etc.). Emphasize the benefits of using spreadsheet from a time and accuracy standpoint.



MODEL ASSESSMENT RESPONSES

- 1. The three financial responsibilities of the entrepreneur are (1) to assess the performance of the firm's operations, (2) to monitor the assets, liabilities and owner's equity, and (3) to manage working capital for operating and expanding the business.
- 2. Fixed assets are assets which are used over a long period of time, usually many years. Fixed assets, such as land, machinery, equipment, and vehicles are used to help convert current assets (such as merchandise and accounts receivable) into cash.
- 3. A more accurate valuation of a fixed asset than the book value (i.e., the value as shown on the balance sheet) is the market value. The market value is the value placed on the asset by buyers and sellers in the market.
- 4. Three examples of intangible assets are goodwill, copyrights, and patents.
- 5. Short-term liabilities are those liabilities that are due within twelve months. They include accounts payable and the current portion of a debt. Long-term liabilities are liabilities due after 12 months, such as mortgages, long-term loans, debt owed to venture capitalists, etc.
- 6. Selling expenses are likely to be considered fixed expenses when computing a break-even analysis. A busines. Ilikely to incur the same expense even if the sales volume increases. On the other hand, operating expenses are likely to vary with the volume of manufactured products.
- 7. The introduction of a computerized system in a business might reduce cashflow because of costs incurred in purchasing the hardware, software, training employees, downtime, and costs associated with integrating the computer system in daily business operations. Cash savings appear as a result of speeding up and increasing operating efficiencies in customer service, accounting, production, quality, processing data, etc.
- 8. When starting a business, entrepreneurs can seek advice from SBDC, SCORE, or local law and accounting firms which specialize in the financial management. In the first years of operations, entrepreneurs need to develop a close relationship with their accountants to refine the business's financial procedures. In addition, entrepreneurs should be encouraged to get involved in activities organized by the local chamber of commerce, SBDC, and other local small business organizations. As the business matures and grows, more sophisticated financial advisors from law and accounting firms might be needed.





Program for Acquiring Competence in Entrepreneurship

Incorporates the needed competencies for creating and operating a small business at three levels of learning, with experiences and outcomes becoming progressively more advanced.

Level 1 — Understanding the creation and operation of a business.

Level 2 — Planning for a business in your future.

Level 3 — Starting and managing your own business.

Self-contained **Student Modules** include: specific objectives, questions supporting the objectives, complete content in form of answers to the questions, case studies, individual activities, group activities, module assessment references. **Instructor Guides** include the full text of each student module and lesson plans, instructional suggestions, and other resources. **PACE, Third Edition, Resource Guide** includes teaching strategies, references, glossary of terms, and a directory of entrepreneurship assistance organizations.

For information on PACE or to order, contact the Publications Departmer i at the Center on Education and Training for Employment, 1900 Kenny Road, Columbus, Chio 43210-1090 (614) 292-4353, (800) 848-4815.

Support for PACE, Third Edition provided in whole or in part by:

International Consortium for Entrepreneurship Education and

International Enterprise Academy

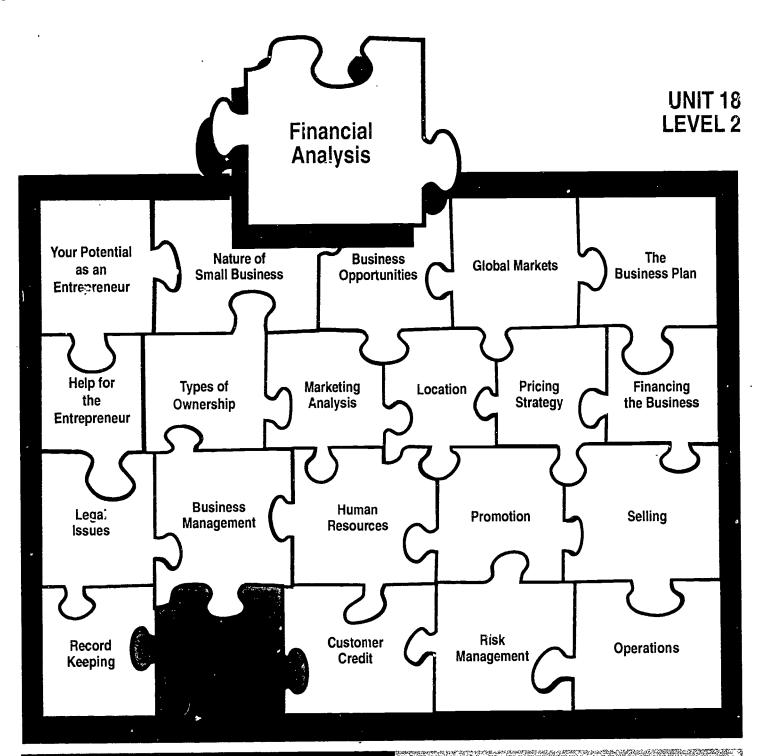
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Program for Acquiring Competence in Entrepreneurship

FINANCIAL ANALYSIS

BEFORE YOU BEGIN...

- 1. Consult the Resource Guide for instructions if this is your first PACE unit.
- 2. Read What are the Objectives for this Unit on the following page. If you think you can meet these objectives now, consult your instructor.
- 3. These objectives were met at Level 1:
 - Discuss the importance of financial management.
 - Define accounting terms.
 - Describe the tools for financial analysis.
 - Identify ways to analyze your business finances.
- 4. Look for these businers terms as you read this unit. If you need help with the meanings, ask your instructor for a copy of the PACE Glossary contained in the Resource Guide.

Accelerated depreciation Allowance for depreciation

Asset convertibility

Bonds

Break-even analysis

Cash forecast

Cash value of life insurance

Copyright

Declining balance

Depreciation

Fixed/variable costs

Tixeu variable co.

Franchise fee

Goodwill

Gross billings

Gross sales

Intangible assets

Liability maturity

Market value

Markup

Net sales

Operating expenses

Overhead

Patent

Salvage value

Selling expenses

Stocks

Straight-line depreciation

Sum-of-the-year-digits depreciation

Useful life of asset

Working capital

FINANCIAL ANALYSIS

WHAT ARE THE OBJECTIVES FOR THIS UNIT?

Upon completion of this unit you will be able to-

- discuss the entrepreneur's role in managing finances,
- explain how to prepare a balance sheet,
- explain how to prepare an income statement,
- explain how to develop a cash flow projection,
- explain how to determine the break-even point,
- identify the use of advisors in the financial analysis decisions, and
- discuss the use of computers in financial analysis.

WHAT IS THIS UNIT ABOUT?

Most companies and firms of significant size have sophisticated tools and techniques and personnel to oversee the financial affairs of the business. This is not the case for the typical owner of a small business. As the owner of a small business, you will need to use basic accounting statements that reflect the results of the business operation. Even if you have your financial statements prepared by an accountant, you should understand how they are put together, what they tell you, and some of the ways in which you can use them.

WHAT IS THE ENTREPRENEUR'S ROLE IN MANAGING THE FINANCES?

Your role in financial management is three-fold:

- To assess the operational results of the firms performance
- To control the condition of the various assets, liabilities, and owners equity involved in your business



• To manage the companies working capital effectively, especially with respect to planning for the cash the company needs to keep operating

Specific activities that you will conduct and develop skills in during your work in this unit include the following:

- Planning for future financial requirements as your company grows and forecasting the cashflow needs of the firm
- Analyzing the components of the balance sheet and profit-and-loss statements
- Assigning and training staff to assist you in conducting the basic financial management functions
- Selecting and working with an accounting service and other professional advisors

Some basic accounting tools will help put you in financial control of your business. The balance sheet and the profit-and-loss statement are two financial statements you will need to understand well enough to prepare and analyze. In this unit you will study components of these statements in more detail. In addition, you will learn how to determine cashflow needs and how to do computations to determine the break-even point.

WHAT ARE THE COMPONENTS OF THE BALANCE SHEET?

The balance sheet gives you a picture of what your business owns and owes at a certain time. It is a "photograph" of your company's assets, liabilities, and net worth. Assets and liabilities are balance sheet items reported at their current value. Net worth (owners equity) reflects the owner's investment in the business.

This financial statement must balance. That is, assets must equal liabilities plus net worth, or the total of those items on the left side under assets must exactly equal the total of the right side under liabilities and net worth.

Assets = Liabilities + Net Worth

Figure 1 illustrates a balance sheet suitable for the entrepreneur just starting in business. This format can be used by sole proprietorships, partners, or corporations. Balance sheets are also presented in report formats with all items arranged vertically on one side.

WHAT ARE ASSETS?

Assets are balance sheet entries that show what your business owns. Assets can be categorized as current, fixed, intangible, or other assets. These categories are based on the availability (liquidity) of items; that is,



BALANCE SHEET as of June 30, 1993	
ssets	
Current Assets	
Accounts receivable (net)	\$114,300
Cash	40,400 93,900
Inventory Short-term prepayments	5,000
Short-term investments	2,000
Total current assets	\$253,60
Fixed Assets	
Plant, Property, and Equipment (PP & E)	15 50
Equipment Furniture and fixtures	15,50 6,00
Land	0,00
Leasehold improvements	4,00
Office equipment	6,00
Gross PP & E	31,50
Less accumulated depreciation	1,00
Net PP & E	30,50
Deposits	
Other Total fixed assets	30,50
Cotal Assets	\$284,10
iabilities and Stockholder's Equity	
Current Liabilities	
Accounts payable	94,20
Dividends payable	10.20
Income taxes payable	18,30 90
Interest payable Other short-term debt	24,80
Total current liabilities	\$138,20
Noncurrent Liabilities	
Long-term debts	83,20
Total Liabilities	\$221,40
Equity	1 0/
Common stock	1,00
Additional paid-in capital Retained earnings	61,70
Total Equity (net worth)	\$62,70
Total Liabilities and Equity	\$284,16

Figure 1. Balance sheet



the length of time it takes to convert them to cash. These categories which describe your assets, can help you control your business.

To guide management of the business, you should analyze and compare each item in a consistent, meaningful way. These comparisons will reflect changes in the financial picture of your business over a period of time. You want your business to have an effective inventory policy and maintain capital investment that has a proper balance of fixed and current assets. Therefore, a realistic and accurate picture of what your business owns should always be available.

Current assets are those assets that, in the normal course of business, are expected to be converted into cash within 12 months. The reason for the 12-month rule is twofold. First, most business managers consider 12 months a normal cycle for their business. Second, state and local tax returns are filed on an annual basis.

When you are assigning assets to this category, ask yourself this question: What is the likelihood that this asset will be converted into cash within 12 months? Cash, merchandise, and accounts receivable are normally defined as *current assets* on a balance sheet.

However, using the 12-month rule, it is possible that a portion of either one of these categories may not be considered a current asset. Suppose a customer owes your business some money and you are carrying the amount due as part of your accounts receivable. To make the sale, you may have agreed that payment will not be due for 18 months. The sale will not be turned into cash within the 12-month period. Or, suppose your firm has some inventory that, because of its nature, is either seasonal or

currently out of style. If you estimate that it will be more than 12 months before a sale can be made, then this item of merchandise should be treated as another type of asset and not as a current asset.

Fixed assets are assets that are used over a period of several years of normal operations. Generally, they are used to help convert current assets into cash. For example, a retailer operates a business from a building he or she owns. The building is an investment that houses the retailer's inventory. Because the building has a useful life of more than 12 months, it is an asset of a more permanent nature than inventory or accounts receivable.

When looking at a balance sheet that has only fixed assets, remember that the value of the fixed assets may be based on cost less any depreciation. A more realistic estimate of worth may be the market value or the value that buyers in the market are willing to pay for the asset. This is an area that you will want to discuss with your accountant to balance your needs to renew fixed asset with your tax liability.

The examples listed in Figure 1 are probably the three most common intangible assets that a small business can have. Goodwill is the value that a business gains from customers, image in the community, or reputation of servicing the public. Determining a value for it is arbitrary. However, if you were to purchase an operating business, most likely a portion of the purchase price would be for this intangible asset. Other common examples of intangible assets are franchise fees, patents, and copyrights, which are tangible only in that a legal document says they exist.



Other assets is a miscellaneous category of assets. If an asset is not current, fixed, or intangible, it should be included in the other assets category. The asset most commonly found in this category is the cash value of life insurance. This value is your "equity" in or "ownership" of an ordinary life insurance policy purchased for yourself. As you pay premiums over the life of the policy, a certain cash value builds and is available to you as a loan from a bank or the insurance company.

Other assets may also include accounts receivable (other debts due to you that are not current) and investments such as *stocks* and *bonds* that you may have in other companies.

WHAT ARE LIABILITIES?

Business liabilities express the cash value of what you owe to others. They are closely tied to business assets. Liabilities are debts incurred by the business to acquire assets. Liabilities are classified either as current liabilities or long-term liabilities.

A current liability is an obligation you owe to some individual or firm that will be paid by a current asset. Usually, a current liability matures or comes due within 12 months. These liabilities are debts that are due within 1 year, to be paid with cash assets or assets that will be converted into cash within 90 days.

The most common type of current liability is accounts payable. When you order and receive merchandise or services, you incur a debt that usually will have to be paid within

1 year. This debt is considered an account payable in that it is due on account to your suppliers.

Other types of current liabilities are with-holding and social security taxes payable. These are liabilities that cause business owners some problems. Money withheld from your salary and your employees' salaries in the form of payroll and income taxes must be submitted to federal, state, and local governments within specified time periods, usually quarterly. Some businesses that are short on funds will use this money for operating expenses. This will inevitably place them in difficulty with the Internal Revenue Service or other taxing authorities.

Another common type of current liability is the part of a long-term debt that is due within one year. Examples of this type of current liability include the present year's payment due on mortgages and long-term notes.

Long-term liabilities are those debts that are due after 12 months of maturity. They normally consist of real estate mortgages, long-term loans, and similar obligations. Usually the funds obtained from incurring debts of this type are used to purchase buildings, equipment, and other fixed assets.

WHAT IS NET WORTH?

The *net worth* entry reflects the owner's equity or investment in the business. These assets are acquired either by incurring a debt or with funds invested by the owner. The net worth entry on a balance sheet of a sole proprietorship states the owner's investment



in the business. The net worth entry for a partnership states each partner's investment separately.

The net worth entry allows you to track your progress in achieving your performance goals in terms of return on your investment in the business. The amount of money the business earns needs to be viewed from the prospective of how much you have invested in it.

Another function of the ownership or net worth entry is to describe the "cushion" for possible losses. As far as creditors are concerned, the net worth is a protection in case of nonpayment of debt. Businesses that fail often end up with a net worth that is negative. This means that the creditors not only have a claim on all the assets, but also that after all assets are converted to cash, not enough funds remain to pay off the debts.

WHAT IS AN INCOME STATEMENT?

An income statement is the part of a financial statement that reflects the income and expenses of a business over a period of time. This contrasts with the balance sheet, which gives the financial picture of a business as of a given date. It contains a limited amount of information and does not show how efficiently the assets of the business are being used. The profit and loss statement, another component of the financial statement, is truly an operating record which provides you with measures of your efficiency and ability to make a profit. Figure 2 is an income statement suitable for the person who is just starting a business.

WHAT ARE THE COMPONENTS OF AN INCOME STATEMENT?

The income statement is usually composed of the following:

- Gross sales
- Cost of goods sold
- Gross profit on sales
- Expenses
- Net profit

Probably the most important component is gross sales. For a typical retail business, this component is the basic source of revenue. It consists of total revenues received from sales for the year. This item is adjusted to arrive at a net sales figure by deducting returned merchandise or allowances for spoiled or damaged merchandise.

If the business sells services rather than merchandise, net sales is labeled gross billings.

The second component, the cost of goods sold, is the cost of the goods or services that your firm sells. It does not include other expenses of doing business. This is the total price paid for the products sold during the accounting period plus transportation costs.

After you have found the net sales and the cost of goods sold, it is possible to calculate the *gross profit* or gross margin. The gross margin equals sales less the cost of the sales. This is really the dollar portion of your sales that represents your *markup* on the inventory.

INCOME (PROFIT AND LOSS) STATEMEN for the period June 30, 1992—June 30, 1993	
Gross Income Income from sale of goods	£1 277 00
theome from sale of goods	\$1,277,00
Cost of Goods Sold	952,70
Gross Margin	\$324,30
Operating Expenses	
Advertising and promotion	7,10
Benefits	10,00
Building expense (rent, lease)	33,00
Depreciation	11,20
Dues and subscriptions	1,00
Equipment rental	28,20
Insurance	14,00
Interest expense Maintenance	15,00
Other expenses	2,10 40
Payroll taxes	7,20
Postage	7,20 2,50
Professional fees	2,30 5,20
Salaries and wages	103,30
Supplies	8,10
Telephone	7,50
Travel and entertainment	8,60
Total operating expenses	\$264,40
Net income (profit) before taxes	\$59,90
Taxes	\$29,20
Net income (profit) after taxes	\$30,70

Figure 2. Income statement

You may analyze your profit and loss statement and find that your profits are not as much as you'd like them to be. You can either increase your margin (or markup) on your existing sales volume, or try to increase the sales volume on the same margin. Increasing the markup may reduce volume, resulting in no net change. Increasing sales volume on the same margin is difficult. It might add advertising or other costs that will use up any profit realized. Gross margin does not take selling or operating expenses into account.

The fourth component includes two categories of expenses: (1) selling, and (2) other operating expenses. These are important expenses in most businesses.

Selling expenses are those expenses for activities performed to increase the sales volume. They include—

- salaries or commissions of salespersons,
- travel expenses for salespeople,
- delivery expenses, and



advertising.

Operating expenses are those expenses made to operate and administer the business. They include—

- office expenses,
- salaries,
- accounting expenses,
- rent,
- telephone expenses,
- utilities expenses,
- expenses for equipment repairs, and
- depreciation of equipment and buildings.

In short, operating expenses include any expense that is not directly due to sales or service activities and is considered an overhead expense. You may also have non operating expenses associated with the cost of financing your business such as interest on loans.

The last component of a profit and loss statement is *net profit*. The net profit of the business is what is left after all normal costs and expenses for the accounting period have been deducted. Net profit is the "bottom line" that summarizes the results of your business. For example, subtracting total selling expenses from gross profit on sales gives the net profit on sales. Net profit on sales shows the profit from all buying and selling activities (before allowances are made for the general overhead costs).

Net profit does not reflect any income taxes because income taxes are not considered a normal operating expense. If you are operating a sole proprietorship, net profit from your business is considered income on your individual federal income tax return.

HOW DO INCOME STATEMENTS VARY ACROSS BUSINESSES?

Because small manufacturers convert raw materials into finished goods, the method of accounting for cost of goods sold differs among wholesalers, retailers, and service firms. In retailing and wholesaling, computing the cost of goods sold during the accounting period involves beginning and ending inventories and purchases made during the accounting period. In manufacturing, it involves not only finished goods inventories, but also several other costs.

An income statement for a typical small manufacturing company includes the following:

- Raw materials—the materials that become a part of the finished product
- Direct labor—labor applied directly to the actual process of converting raw materials into finished products
- Manufacturing overhead—depreciation, utilities, insurance, real estate taxes, and the wages of supervisors and others who do not work directly on the product, and so on. This last term should include all manufacturing costs other than raw materials and direct labor. It does not include selling expenses or general expenses associated with officers and office work-



ers salaries, misc. office expense, or depreciation on office equipment.

WHAT ARE SOME METHODS OF ACCOUNTING FOR DEPRECIATION?

The purpose of depreciation accounts is to recognize that productive assets are consumed by use and an allowance must be made to replenish the asset. Depreciation expenses also have the effect of reducing your net income (but not your cash) and, therefore, your tax liability. It is important to recognize that financial statements as prepared or reviewed by professional accounts must adhere to accepted accounting standards and principles such as conservatism, consistency, and full disclosure.

The cost of certain tangible fixed assets is spread over their useful life through periodic depreciation charges to an expense account. Corresponding credits to a valuation account commonly entitled Allowance for Depreciation are also made. The total amount charged to expense may not exceed the total cost of the asset (purchase price) less any net salvage value (sale or trade-in price) that the asset is expected to have at the end of its useful life. To determine the net salvage value, deduct estimated removal costs from expected sale proceeds.

Three methods of depreciation are described below. Although other methods are occasionally used in practice, these are the most common.

HOW IS STRAIGHT-LINE DEPRECIATION COMPUTED?

The *straight-line* method of computing depreciation is perhaps the most widely used. The same amount of depreciation is recorded for each year (or other accounting period) over the useful life of the asset. To obtain the annual depreciation, the acquisition cost less the expected net salvage value is divided by the expected life in years. This may be expressed by the following formula.



Figure 3. Annual depreciation formula

Suppose that the office machine acquired by Ashton & Barker at a total cost of \$400 is expected to be used for five years and to have a trade-in or salvage value at the end of that time of \$40. The result of substituting these figures in the equation is as follows:

Annual = Depreciation	\$400 - \$40 5	= \$72
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Figure 4. Computation of annual depreciation.



HOW IS DECLINING BALANCE DEPRECIATION COMPUTED?

In the declining-balance method, an appropriate percentage of the total value of the item is applied to the net book value of the item at the beginning of the year to obtain the depreciation charge for that year. The maximum percentage allowable for income tax purposes (and therefore widely used by business firms) is twice the rate that the straight-line method uses.

The straight-line method was applied to the postage machine illustrated in Figure 5. The machine had an expected useful life of 5 years. The depreciation was 1/5 or 20 percent of the cost (minus salvage value) each year. The declining-balance rate allowable

on this same item is twice 20 percent, or 40 percent. (The tax regulations are that salvage value is to be ignored.)

In the first year, the acquisition cost of \$400 would be multiplied by 40 percent to yield \$160 depreciation expense for that year. The book value at the beginning of the second year would be \$240 (\$400 minus \$160) and the depreciation for the second year would be \$96 (40 percent of \$240). In tabular form, the depreciation under the declining-balance method for the 5 years is illustrated as follows:

Although no salvage value is used in figuring the annual depreciation, there remains at the end of 5 years a net book value of \$31.10—only slightly less than the \$40 estimated salvage value used in the straight-line method.

Year	Beginning Book Value	Rate	Depreciation for Year	Depreciation to Date
1	\$400.00	40%	\$160.00	\$160.00
2	240.00	40%	96.00	256.00
3	144.00	40%	57.60	313.60
4	86.40	40%	34.56	348.16
5	51.84	40%	20.74	368.90
Ending	Book Value = \$31.10			

Figure 5. Declining-balance depreciation method



HOW IS THE SUM-OF-THE-YEAR-DIGITS DEPRECIATION COMPUTED?

Under the sum-of-the-year-digits method, a fractional part of the cost of the asset is charged to expense each year. denominator of the fraction is always the sum-of-the-year-digits. This obtained by adding the numbers for each year of the asset's life. For example, the digits of the years of life of a machine expected to last 5 years are 1, 2, 3, 4, and 5. Thus, the sumof-the-year-digits is 1 + 2 + 3 + 4 + 5, or The numerator for any year is the number of years of remaining life of the asset. Thus, for the first year the fraction is 5/15; the second year it is 4/15; and so on. The fraction is applied to the acquisition cost minus the salvage value in this case \$400 minus \$40, or \$360.

In Figure 6 the results of applying this method are listed and compared with both the straight-line and the declining balance methods described.

Note that the declining balance and sum-ofthe-year-digit methods both give higher depreciation charges in the earlier years of the asset life and lower charges in the later years. These two methods are sometimes called accelerated methods. For income tax reporting purposes, a change may be made from the declining-balance method to the straight-line method (for the remaining balance) at any time; but any other change in depreciation method may not be made without the written permission of the tax A business may use several authorities. different depreciation methods at the same time for different assets or groups of assets.

It is also important to note that a business may use one method of depreciation for income tax purposes and another for preparing financial statements.

	SUM-OF-THE-YEAR-DIGITS METHOD OF DEPRECIATION				
Year	Fraction	Cost Minus Salvage	Depreciation for Year	Declining Balance Method	Straight-line Method
1	5/15	\$360.00	\$i25.00	\$160.00	\$72.00
2	4/15	360.00	96.00	96.00	72.00
3	3/15	360.00	72.00	57.60	72.00
4	2/15	360.00	48.00	34.56	72.00
5	1/15	360.00	24.00	20.74	<u>72.00</u>
Total Depreciation - 5 years		\$360.00	<u>\$368.90</u>	<u>\$360.00</u>	
Net Book Value - End of 5 years			\$40.00	\$31.10	\$40.00

Figure 6. Sum-of-the-year-digits depreciation method



WHY IS A CASH FORECAST NECESSARY?

In addition to preparing and analyzing balance sheets, profit and loss statements, and depreciation schedules, it is necessary to prepare *cash forecasts*. Cash planning and forecasting the future cash needs of the business are vital for survival. Unless cash needs are foreseen and provided for there is a good chance the business will not be able to meet its commitments.

Business growth is often associated with needs for cash that grow faster than cash receipts. This is because assets such as inventory are normally paid for faster than accounts receivable are collected.

Too much cash on hand shows that the owner is not alert to opportunities for wise use of surplus cash. Large amounts of cash which will not be used right away should be invested where the cash will earn money for the business.

Successful business growth will result only if working capital is managed (current assets minus current liabilities) effectively. You are going to learn cash forecasting techniques that will force you to make your assumptions explicit regarding the interrelationships among the key working capital components:

- Cash
- Accounts receivable
- Inventory
- Accounts payable

HOW IS A CASH FORECAST PREPARED?

Figures used in the cash forecast are expected cash receipts and payments. Forecasting is not mere guesswork, but is based on past experience and knowledge of performance of similar businesses. For example, the expected cash sales figure for a certain month is arrived at by comparing that month's sales figures for previous years, and considering price and market trends for the period.

Cash forecasts are normally prepared on a monthly basis for at least 3 months in advance. Each month the figures are compared with actual results and revised accordingly. The cash forecast should always be 3 months to 1 year ahead of current operations. A new business will always be expected to project monthly cash forecasts for at least the first year of operations.

An example of a cash forecast is illustrated in Figure 7. The projected accounts receivable receipt for each month was computed by what past experience has shown will be paid by customers.

Although the firm's credit policy is that all charge purchases are to be paid within 1 month, the history has been that 50 percent are paid during the month following the sale and 50 percent during the second month.

Other key assumptions are as follows:

 Sales will increase dramatically by 20 percent per month throughout the forecast period.



CASH BUDGET	Nov Actual	Dec Actual	Jan F-cast	Feb F-cast	Mar F-cast	Apr F-cast	May F-cast	Jun F-cast	Jul F-cast	Ang F-cast	Sept F.cast	Oct F-cast	Nov F-cast	Dec F-cast
Sales	40,000	48,000	57,600	69,120	82,944	99,533	119,439	143,327	171,993	206,391	247,669	297,203	356,644	427,973
Cash receipts 30 days after sale (50%) 60 days after sale (50%)			24,000	28,800	34,560	41,472	49,766	59,720 49,766	71,664 59,720	85,996	103,196	123,835 103,196	148,602	178,322
Total cash receipts			44,000	52,800	63,360	76,032	91,238	984,601	131,383	157,660	189,192	227,030	272,436	326,924
Cash dishursements: Purchases (65%) Selling and Administra.			37,440	44,928	53,914	64,696	77,636	93,163	562,111	134,154	160,985	193,182	231,819	278,182
tive expenses (fixed at \$10,000)			10,000 516	10,000	10,000	10,000 476	10,000 457	10,000	10,000	10,000	10,000 376	10,000	10,000	10,000
Interest Taxes Capital expenditures			+ + + +	000	5,000 0 0	000	000	5,000	000	¢ 0 0	5,000 0 0	0 20,000 0	C O O	000,3
Predends														
Total cash disbursements			47,956	55,433	69,448	75,172	88,093	108,639	122,202	144,528	176,362	223,469	242,049	293,386
Cach increase or (decrease) Beginning cash balance		10,000	(3,956)	(2,633)	(6,088)	860	3,146	847	9,181	13,132	12,830	3,561	30,388	33,537
Ending cash balance of no financing)			13.9561	(2,633)	(6,088)	860	3,1.46	847	9,181	13,132	12,830	3,561	30,388	33,537
Desired minimum cash level			10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	000'01	10,000
Short term to an (or surplus available for investment)			13,956	12,633	16,088	9,140	6,854	9,153	819	(3,132)	(2,830)	6,439	(20,388)	(23,537)

Figure 7. Cash forecast

- Inventory purchases underlying the cost of goods sold must be paid for during the month in which they are sold.
- Cost of goods sold represents a constant 65 percent of gross sales.
- All sales are sold on credit.
- A minimum cash balance of \$5,000 at the end of each month should be maintained.

HOW IS A BREAK-EVEN POINT COMPUTED?

Comparing the break-even point is one technique to determine when your business will begin to make a profit. The break-even point tells you how much business your firm will need to do to break even, that is, to operate with neither a profit nor a loss.

To find the break-even point, you must first determine the fixed costs and variable costs. These costs are classified by preparing a detailed income statement and assigning each of the expense categories into either fixed or variable costs. Once these have been calculated, the following formula can be used to find the break-even point (volume or business):

Break-Even = Point	Total Fixed Costs Selling Price - Variable Cost (Per Unit) (Per Unit)
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Figure 8. Break-even formula

For example, assume that your total fixed costs are \$15,000. You are selling a product for \$100 a unit. The variable cost per unit is \$25. In order to break even, you need to sell 200 units.

Figure 9. Break-even computation

Thus, if you sell less than 200 units at these costs, you will have a loss. Of course, you will want to do better than break even. If you want to make a profit, you will have to sell more than 200 units at these costs.

WHAT INFORMATION IS OBTAINED FROM BREAK-EVEN ANALYSIS?

Break-even analysis can help you compare cost to profits at different volumes of sales. You can use break-even analysis to see how profitable different items are in a line of products that you sell. This analysis can answer questions such as: Which items are most profitable? Which are least profitable? Have any items passed their popularity peaks (shown decreasing profits)? How many units of a new product must be sold before it begins to bring in a profit?, etc.

A break-even chart shows visually the relationship of costs to profits at different sales volumes. Figure 11 is a break-even chart showing the break-even point, and also the profits and losses for other volumes of sales. It is plotted for a manufacturing company

with costs for one of its products figures as follows:

- Total fixed costs = \$100,000
- Variable costs = \$50 per unit
- Selling price = \$100 per unit

Figure 10 shows that profits depend on the number of units sold only when the price and cost patterns do not change. Each of the factors that affect profit can be varied. If you could find a way to reduce fixed costs, you would be able to lower he break-even point. In addition you need to consider that even the most "fixed" costs can vary over a long enough period of time (e.g., reduce your rent by moving to a smaller facility.

If you could reduce variable costs, this would cause the total cost line to rise rapidly. You could also raise or lower prices. An increase in price would lower the break-even point. An inventor once said that if he could only sell one of his inventions for \$500,000, he would make a tidy profit.

Analysis of Figure 10 reveals these facts about the break-even point:

- The larger the loss area, the greater the down-side risk
- The larger the profit area, the greater the up-side potential
- The larger the fixed costs, the higher the risk (increased loss area)

• The large, the proportion of variable costs, the higher the risk (increased loss area and decreased profit area).

WHAT ADVISORS CAN HELP WITH FINANCIAL ANALYSIS DECISIONS?

Advisors may be productively employed at several stages of the business growth and development.

In the pre-start-up situation you may need an objective outside party to help you structure the methods you use to finance your business and to assess the quality of the financial assumptions upon which you are basing your first years forecasts.

Good prospects for this type of advice include your local SBDC (Small Business Development Center), a SCORE (Service Corp of Retired Executives), or a local accountant experiences in the industry you will be entering.

During the first several years of the business operations, you may require the assistance of your accountant to refine your financial management procedures and to identify specific trends within your financial statements. You may also want to participate in local "roundtables" sponsored by your local chamber of commerce to gain insights from other business owners. The SBDC office can also give you a "second opinion" or a financial "checkup" to help you monitor your progress in maintaining control over your working capital accounts.



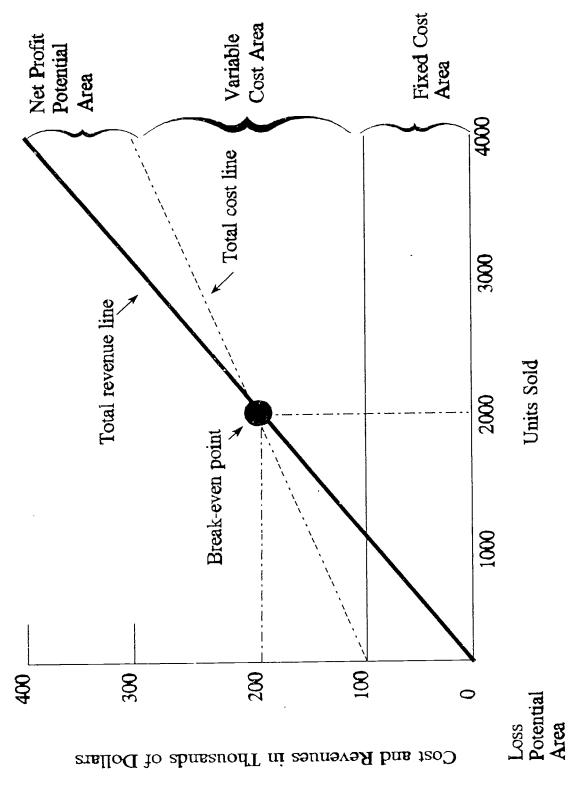


Figure 10. Break-even chart



As the business matures, you will want to utilize more specialized advisors from both law and accounting to plan for succession, and to refine your strategic plan. During this stage you will probably begin to rely on "in-house" staff to provide significant advice on financial management. You may also find that having a qualified board of directors will improve your business performance.

HOW CAN COMPUTERS AID FINANCIAL MANAGEMENT?

Many businesses find the best solution to their information processing and financial analysis requirements is a combination of manual and electronic methods. With the increasing availability of low-cost, efficient computers, however many business owners are converting manual information processing to computerized operations. Any tedious, repetitive, and costly financial information recording task that involves processing of information in a predetermined way is a candidate for computerization.

If you elect to computerize your record keeping and accounting systems, you will be able to use the information captured by these systems to more efficiently control and manage the financial aspects of your business.

Modern computer-based accounting packages have the capability of automatically producing all the required ratio or analysis statements useful for analysis as well as handling accounts receivable, accounts payable and inventory management tasks. In addition, these systems can output data in the forms required by the common financial spreadsheet programs for additional analysis.

Financial spreadsheets allow you to prepare many different versions of your forecasts to suit different initial conditions or changes in your business environment. These programs are fairly "intuitive" to use because they use the traditional rows-and-columns format developed to record and analyze accounting information.

The utility of these types of programs is that they can work with dozens of variables and hundreds of assumptions with such results as a 10-year income and cashflow statement for a proposed shopping mall, a 3-year income statement for a retail store selling hundreds of items; a cost-efficiency study of a 10-person firm, or just about any other projections or analyses that you can dream up.

Other types of computer programs are available for financial analysis and management. Programs pertaining to productivity, payroll, investments, inventory control, ratio analysis, and so forth may be obtained from commercial sources. A potential user of such programs should contact a reputable computer supplier review computer periodicals, and text; or consult with owners using microcomputers in similar businesses.

There are four cost areas that you should consider when planning the conversion to a computerized operation:

- Hardware includes computer, videomonitors, printers, electronic cash registers, barcode scanners, and so forth.
- Software includes general purpose programs that you apply to your situation, e.g., electronic spreadsheet, word processing, database management and specialized programs that you purchase to



perform one function for your business, etc. general ledger, accounts receivable, payroll. Software costs can easily equal your hardware costs for the first year for a basic system including word processing, spreadsheet, accounting package, inventory management, and cost estimation.

- Training and "downtime" required to learn new skills to operate the automated systems should be considered.
- Integrating costs associated with merging hardware and software elements into a working system. Also customizing general purpose software to your specific needs is a very important consideration. Unless you are extremely skilled in the computer programming areas, this will probably be your biggest first-year cost area.

The real cost savings occurs when computer operations are used to speed up and improve the operational aspects of the business: customer service, production, financial analysis. You should always be alert for opportunities to integrate several aspects of or business in new ways.



ACTIVITIES

The following activities are designed to help you apply what you have learned in this unit.

INDIVIDUAL ACTIVITIES

A.

Prepare a profit-and-loss statement using the following information. Compute the net profit or loss for this business. Record the information on a profit-and-loss statement obtained from your instructor. Compute a break-even point for this business. What assumptions must you make to compute this point of sales?

The following transactions occurred during the year:

- Sales during the year were \$260,000
- Customers returned \$10,000 of the merchandise.
- The beginning inventory was \$40,625.
- Purchases during the year amounted to \$169,000.
- The ending inventory was \$50,000.
- Employees' wages and salaries paid during the year amounted to \$19,600.

- Advertising expenses were \$2,000.
- Miscellaneous expenses were \$1,500.
- Rent expenses were \$2,400.
- The owner's salary was \$15,000.
- The annual insurance premium was \$200.
- Interest expenses were \$10,800.
- Depreciation expenses were \$6,500.

B.

Prepare a balance sheet using the following information. Record the information on a balance sheet obtain from your instructor. Compute the owner's equity in the business as of December 31, 19....

The following transactions occurred during the year:

- Cash on hand at the end of the year was \$14,475.
- The ending inventory was \$50,000.
- Accounts receivable were \$75,000.
- Store fixtures and equipment were \$60,000.



- Depreciation on store fixtures and equipment was \$5,500.
- A delivery truck was purchased for \$7,000, and depreciation for the first year was \$1,000.
- Accounts payable totalled \$169,000.
- Accrued wages to employees were \$2,600.
- A note payable of \$10,000 was outstanding.

GROUP ACTIVITIES

A.

In teams of two to three, develop a 1-month projected profit-and-loss statement for a small business of your choice. Identify all the possible expenses that you believe this business could have. Review reference materials available from your instructor to determine possible types of business expenses. Project estimated revenues, expenses, and profits for the 12-month period. Compare your projections with those of other class members.

B.

Work in groups of ur to six. Secure financial statements of a local small business of your choice. Develop a ratio analysis to assess the liquidity, funds management, and profitability performance of the business you selected.

C.

Continue working in teams. Refer to Activity B. Consult your local library to secure information on average industry financial ratios. After you decide what industry is appropriate for the business you selected, compare the ratios computed in the previous activity against industry data. Does the performance picture of the business change?



CASE STUDY

Bill Jones operates a small, two year old, wholesale toy business. He has asked you for advice.

For each of the last six months, his sales have been relatively constant at \$10,000 per month. The cost of goods sold averages 75 percent of sales and operating expenses are at constant \$2,500 per month. Bill wanted to expand his sales beyond the current break even level to generate positive net earnings.

He is able to collect 70 percent of his accounts receivable during the month of sale and the remaining 30 percent during the following month. He must pay for all his goods for resale within 30 days.

Bill developed a more effective method of marketing his products which resulted in sales increases of \$2,000, \$3,000, and 4,000 during each of the past three months. Before he began to increase his sales he had \$2,000 cash available.

DISCUSSION QUESTIONS

- 1. What is the impact of these sales increases on his net earnings?
- 2. Bill has encountered a serious cash flow problem and would like your help in diagnosing it and suggesting ways to solve the problem.
- 3. In what month does his cash flow problem become serious?
- 4. What steps could Bill have taken to avoid the problem he now faces?



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ASSESSMENT

Read the following questions to check your knowledge of the topics presented in this unit. When you feel prepared, ask your instructor to assess your competency on them.

- 1. Describe three financial responsibilities of the entrepreneur.
- 2. Distinguish fixed from current assets.
- 3. How would you place a value on fixed assets different than that found on the balance sheet?
- 4. List three examples of intangible assets.
- 5. Distinguish long-term from current liabilities.
- 6. Are selling expenses or operating expenses more likely to be classified as fixed expenses when computing a break-even analysis?
- 7. Where would you expect to reduce cash by using a computer system in your business? Where would you expect to increase cashflow by introducing a computer?
- 8. Describe how your use of business advisors would change as your business develops and grows.



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PACE

	Unit 1.	Your Potential as An Entrepreneur
	Unit 2.	The Nature of the Small Business
	Unit 3.	Business Opportunities
	Unit 4.	Global Markets
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	Unit 6.	Help for the Entrepreneur
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\Rightarrow	Unit 18.	Financial Analysis
	Unit 19.	Customer Credit
	Unit 20.	Risk Management
	Unit 21.	Operations
	Resource C	Buide
	Instructor's	Guide

Units on the above entrepreneurship topics are available at the following levels:

- * Level 1 helps you understand the creation and operation of a business
- * Level 2 prepares you to plan for a business in your future
- * Level 3 guides you in starting and managing your own business

