

ELEMENTS OF COSTING

STUDY TEXT

Qualifications and Credit Framework

AQ2016

This Study Text supports study for the following AAT qualifications:

AAT Foundation Certificate in Accounting – Level 2

AAT Foundation Diploma in Accounting and Business – Level 2

AAT Foundation Certificate in Bookkeeping – Level 2

AAT Foundation Award in Accounting Software – Level 2

AAT Level 2 Award in Accounting Skills to Run Your Business

AAT Foundation Certificate in Accounting at SCQF – Level 5

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INTRODUCTION

HOW TO USE THESE MATERIALS

These Kaplan Publishing learning materials have been carefully designed to make your learning experience as easy as possible and to give you the best chance of success in your AAT assessments.

They contain a number of features to help you in the study process.

The sections on the Unit Guide, the Assessment and Study Skills should be read before you commence your studies.

They are designed to familiarise you with the nature and content of the assessment and to give you tips on how best to approach your studies.

STUDY TEXT

This study text has been specially prepared for the revised AAT qualification introduced in September 2016.

It is written in a practical and interactive style:

- key terms and concepts are clearly defined
- all topics are illustrated with practical examples with clearly worked solutions based on sample tasks provided by the AAT in the new examining style
- frequent activities throughout the chapters ensure that what you have learnt is regularly reinforced
- 'pitfalls' and 'examination tips' help you avoid commonly made mistakes and help you focus on what is required to perform well in your examination
- 'Test your understanding' activities are included within each chapter to apply your learning and develop your understanding.

ICONS

The chapters include the following icons throughout.

They are designed to assist you in your studies by identifying key definitions and the points at which you can test yourself on the knowledge gained.



Definition

These sections explain important areas of Knowledge which must be understood and reproduced in an assessment.



Example

The illustrative examples can be used to help develop an understanding of topics before attempting the activity exercises.



Test your understanding

These are exercises which give the opportunity to assess your understanding of all the assessment areas.

Quality and accuracy are of the utmost importance to us so if you spot an error in any of our products, please send an email to mykaplanreporting@kaplan.com with full details.

Our Quality Co-ordinator will work with our technical team to verify the error and take action to ensure it is corrected in future editions.

Progression

There are two elements of progression that we can measure: first how quickly students move through individual topics within a subject; and second how quickly they move from one course to the next. We know that there is an optimum for both, but it can vary from subject to subject and from student to student. However, using data and our experience of student performance over many years, we can make some generalisations.

A fixed period of study set out at the start of a course with key milestones is important. This can be within a subject, for example 'I will finish this topic by 30 June', or for overall achievement, such as 'I want to be qualified by the end of next year'.

Your qualification is cumulative, as earlier papers provide a foundation for your subsequent studies, so do not allow there to be too big a gap between one subject and another.

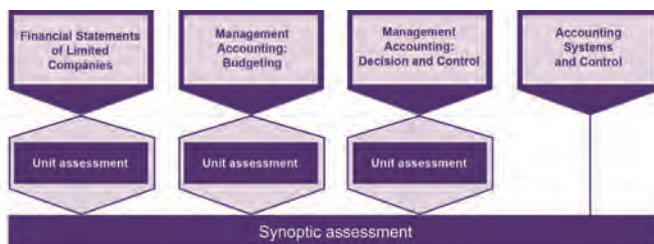
We know that exams encourage techniques that lead to some degree of short term retention, the result being that you will simply forget much of what you have already learned unless it is refreshed (look up Ebbinghaus Forgetting Curve for more details on this). This makes it more difficult as you move from one subject to another: not only will you have to learn the new subject, you will also have to relearn all the underpinning knowledge as well. This is very inefficient and slows down your overall progression which makes it more likely you may not succeed at all.

In addition, delaying your studies slows your path to qualification which can have negative impacts on your career, postponing the opportunity to apply for higher level positions and therefore higher pay.

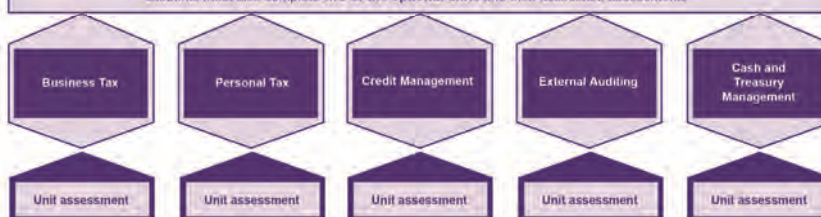
You can use the following diagram showing the whole structure of your qualification to help you keep track of your progress.

ELEMENTS OF COSTING

Professional Diploma
Level 4



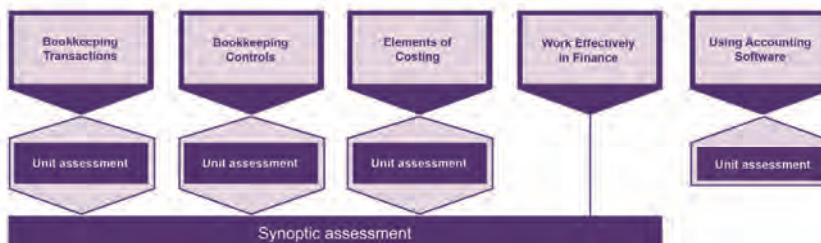
Students must also complete **two of the optional units** and their associated assessments



Advanced Diploma
Level 3



Foundation Certificate
Level 2



UNIT GUIDE

Introduction

The purpose of this unit is to give students a basic introduction to costing, building a sound foundation in the knowledge and skills they need for more complex costing and management accounting units such as Level 3 Management Accounting: Costing and later, Level 4 Management Accounting: Budgeting.

Students will understand the importance of the costing system as a source of information for internal management decision-making. In contrast to the more outward perspective of financial accounting, the skills developed in this unit will allow students to provide information to managers that can be used to assist in internal business planning, decision making and control.

A student successfully completing this unit will be an effective member of the costing function within the accounting team. Working with the management/financial accountant and with supervision, they can be expected to:

- use the costing system to record and extract data and information for management purposes
- extract, compare and provide information on actual performance against budget.

This unit covers the nature of cost and how it is used in a costing system. Students will understand the different classifications of cost and how they can be used for internal management decision making. As well as classifying costs, students will code transactions and build up a unit cost for a product or service, using a range of techniques to cost material, labour and overheads. Students will also engage with the budgetary control system by comparing actual costs with budgeted costs and they will determine variances, noting whether they are adverse or favourable.

Essential to the unit is cost behaviour. Students will understand how cost behaves at different levels of output, and how variable and fixed costs per unit behave as output changes. The High-Low method, in its simplest format, is introduced to give students the underpinning knowledge and skill development for later units for management accounting at Levels 3 and 4, where marginal costing is used as an aid to management decision making.

Another important knowledge and skill that students will develop is to understand overhead as a component of cost and build a basic unit product cost using labour hours, machine hours and per unit as a basis. This will prepare students and give them the basic tools for studies in overhead apportionment, reapportionment and absorption at Level 3.

Elements of Costing is a **mandatory** unit in this qualification.

Learning outcomes

On completion of this unit the learner will be able to:

- understand the cost recording system within an organisation
- use cost recording techniques
- provide information on actual and budgeted costs and income

Delivering this unit

Unit name	Content links	Suggested order of delivery
Bookkeeping Transactions	The use of codes in this unit links with Bookkeeping Transactions.	Bookkeeping Transactions might be delivered before, at the same time, or after Elements of Costing.

THE ASSESSMENT

Test specifications for this unit assessment

Assessment type	Marking type	Duration of exam
Computer based unit assessment	Computer marked	90 minutes

The assessment for this unit consists of 10 compulsory, independent, tasks.

The competency level for AAT assessment is 70%.

Learning outcomes	Weighting
1 Understand the cost recording system within an organisation	20%
2 Use cost recording techniques	60%
3 Provide information on actual and budgeted costs and income	20%
Total	100%

UNIT LINK TO SYNOPTIC ASSESSMENT

AAT AQ16 introduced a Synoptic Assessment, which students must complete if they are to achieve the appropriate qualification upon completion of a qualification. In the case of the Foundation Certificate in Accounting, students must pass all of the mandatory assessments and the Synoptic Assessment to achieve the qualification.

As a Synoptic Assessment is attempted following completion of individual units, it draws upon knowledge and understanding from those units. It may be appropriate for students to retain their study materials for individual units until they have successfully completed the Synoptic Assessment for that qualification.

With specific reference to this unit, the following learning objectives are also relevant to the Foundation Certificate in Accounting Synoptic Assessment

LO2 Use of cost recording techniques

LO3 Provide information on actual and budgeted costs and income

STUDY SKILLS

Preparing to study

Devise a study plan

Determine which times of the week you will study.

Split these times into sessions of at least one hour for study of new material. Any shorter periods could be used for revision or practice.

Put the times you plan to study onto a study plan for the weeks from now until the assessment and set yourself targets for each period of study – in your sessions make sure you cover the whole course, activities and the associated Test your understanding activities.

If you are studying more than one unit at a time, try to vary your subjects as this can help to keep you interested and see subjects as part of wider knowledge.

When working through your course, compare your progress with your plan and, if necessary, re-plan your work (perhaps including extra sessions) or, if you are ahead, do some extra revision/practice questions.

Effective studying

Active reading

You are not expected to learn the text by rote, rather, you must understand what you are reading and be able to use it to pass the assessment and develop good practice.

A good technique is to use SQ3Rs – Survey, Question, Read, Recall, Review:

1 Survey the chapter

Look at the headings and read the introduction, knowledge, skills and content, so as to get an overview of what the chapter deals with.

2 Question

Whilst undertaking the survey ask yourself the questions you hope the chapter will answer for you.

3 Read

Read through the chapter thoroughly working through the activities and, at the end, making sure that you can meet the learning objectives highlighted on the first page.

4 Recall

At the end of each section and at the end of the chapter, try to recall the main ideas of the section/chapter without referring to the text. This is best done after short break of a couple of minutes after the reading stage.

5 Review

Check that your recall notes are correct.

You may also find it helpful to re-read the chapter to try and see the topic(s) it deals with as a whole.

Note taking

Taking notes is a useful way of learning, but do not simply copy out the text.

The notes must:

- be in your own words
- be concise
- cover the key points
- be well organised
- be modified as you study further chapters in this text or in related ones.

Trying to summarise a chapter without referring to the text can be a useful way of determining which areas you know and which you don't.

Three ways of taking notes:

1 Summarise the key points of a chapter

2 Make linear notes

A list of headings, subdivided with sub-headings, listing the key points.

If you use linear notes, you can use different colours to highlight key points and keep topic areas together.

Use plenty of space to make your notes easy to use.

3 Try a diagrammatic form

The most common of which is a mind map.

To make a mind map, put the main heading in the centre of the paper and put a circle around it.

Draw lines radiating from this to the main sub-headings which again have circles around them.

Continue the process from the sub-headings to sub-sub-headings.

Annotating the text

You may find it useful to underline or highlight key points in your study text – but do be selective.

You may also wish to make notes in the margins.

Revision phase

Kaplan has produced material specifically designed for your final examination preparation for this unit.

These include pocket revision notes and an exam kit that includes a bank of revision questions specifically in the style of the new syllabus.

Further guidance on how to approach the final stage of your studies is given in these materials.

Further reading

In addition to this text, you should also read the 'Accounting Technician' magazine every month to keep abreast of any guidance from the examiners.

Cost classification

Introduction

This chapter introduces the concepts of financial and management accounting, the terminology of cost, profit and investment centres and looks in detail at different ways of classifying costs. It then looks at how total costs can be classified in more detail to enable cost planning for the future.

ASSESSMENT CRITERIA

- Recognise how costs are collected and classified in different types of organisation (1.1)
- Identify the relationship between the costing and financial accounting systems within an organisation (1.3)
- Distinguish between cost, profit and investment centres (1.5)
- Identify how materials, labour and expenses are classified and recorded (1.6)
- Calculate the direct cost of a product or service (2.5)

CONTENTS

- 1 Financial accounting and management accounting
- 2 Terminology – cost units and cost centres
- 3 Cost classification
- 4 The high-low method

1 Financial accounting and management accounting

1.1 Introduction

Most businesses, whether large or small, generate large numbers of different types of transaction. To make sense of those transactions, they need to be recorded, summarised and analysed. In all businesses, it is the accounts department that performs these tasks.

From the raw data of the business's transactions, accountants provide **information for a wide range of interested parties**. Each party requires, however, slightly different information, dependent upon their interest in the business.

1.2 Financial accounting

Financial accounting provides information to **external groups**, such as the owners of the business, potential investors and HM Revenue and Customs (who uses this information to check that the business is paying the correct amount of tax).

Financial accounting could be described in simple terms as **keeping score**. The financial accounts produced are a **historic record** of transactions and are presented in a standard format laid down in law. These normally include:

- A statement of financial position (also known as a balance sheet).
- A statement of profit or loss (also known as an 'income statement' or 'profit and loss account').

Such statements are normally only produced **once or twice a year**.

Financial accounting is not, however, the only type of accounting. The other main type is Management accounting.

1.3 Management accounting

Management accounting provides information for **internal users**, such as the managers of the business.

Management accounting compares **actual results with predicted results** and tries to use information to make further predictions about the future.

It also provides information which managers can use to make **decisions**.

Management accounts can be produced in any format that is useful to the business and tend to be produced frequently, for instance every month.

1.4 The aims of management accounting

The aim of management accounting is to assist management in the following areas of running a business.

- **Planning**
For example, through the preparation of annual budgets. This is a key aspect of management accounting.
- **Co-ordinating**
Planning enables all departments to be co-ordinated and to work together.
- **Controlling**
The comparison of actual results with the budget helps to identify areas where operations are not running according to plan.
Investigating the causes, and acting on the results of that investigation, helps to control the activities of the business.
- **Communicating**
Preparing budgets that are distributed to department managers helps to communicate the aims of the business to those managers.
- **Motivating**
Management accounts include targets. These should motivate managers (and staff) and improve their performance.
If the target is too difficult, however, it is likely to demotivate and it is unlikely to be achieved.

1.5 Useful management information

For **management information** to be of use to a particular group of managers, it must have the following attributes:

- **Relevant to their responsibilities.** For example, a production manager will want information about inventories, production levels, production performance, etc. within his particular department.
- **Relevant to particular decisions.** For example, if deciding whether to close a division, managers would need to know the likely costs including lost sales, likely redundancies and so on.
- **Timely.** Information has to be up-to-date to be of any value.
- **Value.** The benefits of having the information must outweigh the cost of producing it.

1.6 Cost accounting

Cost accounting is part of management accounting. As its name suggests, it is concerned with **establishing costs**. It developed within manufacturing businesses where costs are most difficult to isolate and analyse.

Cost accounting is primarily directed at enabling management to perform the functions of **planning, control** and **decision making**:

- (a) determining costs and profits during a control period
- (b) valuing inventories of raw materials, work in progress and finished goods, and controlling inventory levels
- (c) preparing budgets, forecasts and other control data for a forthcoming control period
- (d) creating a reporting system which enables managers to take corrective action where necessary to control costs
- (e) providing information for decision-making such as setting the selling price of products or services.

Items (a) and (b) are traditional **cost accounting roles**; (c) to (e) extend into management accounting.



Test your understanding 1

The table below lists some of the characteristics of financial accounting and management accounting systems.

Indicate the characteristics for each system by putting a tick in the relevant column of the table.

Characteristic	Financial accounting	Management accounting
Content can include anything useful.	<input type="checkbox"/>	<input type="checkbox"/>
To help managers run the business.	<input type="checkbox"/>	<input type="checkbox"/>
Formats dictated by accounting rules.	<input type="checkbox"/>	<input type="checkbox"/>
Looks mainly at historical information.	<input type="checkbox"/>	<input type="checkbox"/>
Produced for shareholders.	<input type="checkbox"/>	<input type="checkbox"/>

2 Terminology – cost units and cost centres

2.1 Cost units

To help with the above purposes of planning, control and decision making, businesses often need to calculate a cost per unit of output.

A key question, however, is what exactly we mean by a 'unit of output', or '**cost unit**'. This will mean different things to different businesses but we always look at what the business produces.

- A car manufacturer will want to determine the cost of each car and probably different components as well.
- In a printing firm, the cost unit could be the specific customer order.
- For a paint manufacturer, the unit could be a litre of paint.
- An accountancy firm will want to know the costs incurred for each client. To help with this it is common to calculate the cost per hour of chargeable time spent by staff.
- A hospital might wish to calculate the cost per patient treated, the cost of providing a bed for each day or the cost of an operation.

2.2 Cost centres

A **cost centre** is a small part of a business for which costs are determined. This varies from business to business but could include any of the following:

- The Research and Development department
- The Human Resources function
- A warehouse
- A factory in a particular location.

It is important to recognise that cost centre costs are necessary for control purposes, as well as for relating costs to cost units. This is because the manager of a cost centre will be responsible for the costs incurred.



Test your understanding 2

Suggest **ONE** suitable cost unit and **TWO** cost centres for a college of Further Education.

2.3 Cost, profit and investment centres

Some businesses use the term 'cost centre' in a more precise way than that given above:

- A **cost centre** is when the manager of the centre (department or division or location or...) is responsible for costs but not revenue or investment. This is usually because the centre has no revenue stream.

For example, a Research and Development department.

- A **profit centre** is when the manager of the centre (department or division or location or...) is responsible for costs and revenues but not investment.

For example, a local supermarket where investment decisions are made by the main Board.

- An **investment centre** is when the manager of the centre (usually a division) is responsible for costs and revenues **and** the level of investment in the division.

For example, the US subsidiary of a global firm. The CEO would usually have authority to open new factories, close others and so on.

3

Cost classification

3.1 Types of cost classification

Costs can be **classified** (collected into logical groups) in many ways. The particular classification selected will depend upon the purpose for which the resulting analysed data will be used, for example:

Purpose	Classification
Financial accounts	By function – cost of sales, distribution costs, administrative expenses.
Cost control	By element – materials, labour, other expenses.
Cost accounts	By relationship to cost units – direct, indirect.
Budgeting, decision making	By behaviour – fixed, variable.

3.2 Cost classification by function

For financial accounting purposes costs are split into the following categories:

- **Cost of sales** – also known as production costs. This category could include production labour, materials, supervisor salaries and factory rent.
- **Distribution costs** – this includes selling and distribution costs such as sales team commission and delivery costs.
- **Administrative costs** – this includes head office costs, IT support, HR support and so on.
- **Finance** – this refers to money paid to providers of finance (for example banks) and includes bank charges and interest charged on loans.

Note that one cost you will meet in the exam is depreciation. This is a measure of how much an asset is wearing out or being used up. The classification will depend on which asset is being depreciated. For example:

- Cost of sales – depreciation on a machine in the production line.
- Distribution – depreciation of a delivery van.
- Admin – depreciation of a computer in the accounts department.



Test your understanding 3

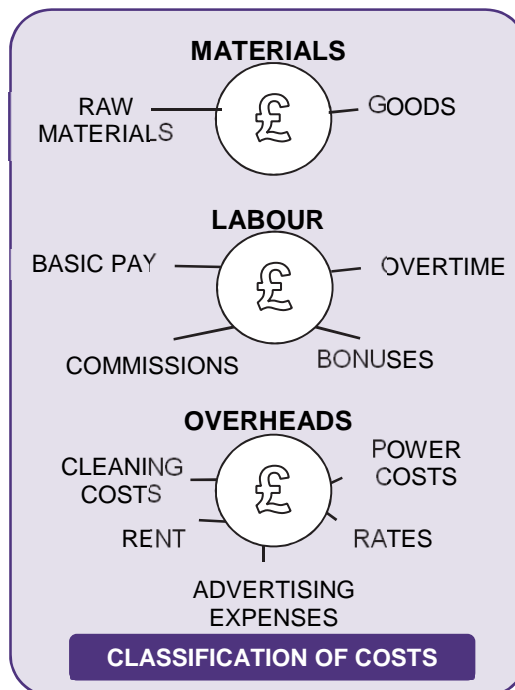
James plc makes mobile phones. Classify the following costs by function in the table below.

Cost	Production	Admin	Distribution
Purchases of plastic to make phone cases.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IT director's bonus.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depreciation of factory building.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salaries of production workers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insurance of sales team laptops.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.3 Cost classification by element

The simplest classification you will meet in the exam is splitting costs according to element as follows:

- **Materials** – includes raw materials for a manufacturer or alternatively the cost of goods that are to be resold in a retail organisation.
- **Labour** – Labour costs can consist of not only basic pay but overtime, commissions and bonuses as well.
- **Overheads** – this may also be referred to as other expenses and includes electricity, depreciation, rent and so on.



Test your understanding 4

Classify the following costs for a supermarket chain by element in the table below.

Cost	Materials	Labour	Overheads
Tins of baked beans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lighting costs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depreciation of freezers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Checkout staff salaries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flour used in in-store bakery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.4 Cost classification by nature – direct and indirect

To make calculating a cost per unit easier costs are split into the following categories:

- A direct cost is an item of cost that is traceable directly to a cost unit. For example, the cost of a bought-in engine for a car manufacturer. The total of all direct costs is known as the 'prime cost' per unit. An **indirect** cost is a cost that cannot easily be identified with any one finished unit. Such costs are often referred to as 'overheads'. For example, the rent on a factory.

You may notice that we have used the term 'overheads' in two different ways in the last two sections – once to refer to **expenses** (costs other than labour and materials) and once to refer to **indirect costs** (costs that can't be traced to individual units of production). In reality there are some direct costs that are not materials or labour, but they fall outside the range of this exam. This means that the term 'overhead' can be used to refer to indirect costs **or** expenses.



Test your understanding 5

Chadwicks runs a car repair service and garage. Classify the following costs by nature (direct or indirect) in the table below.

Cost	Direct	Indirect
Engine oil used in services.	<input type="checkbox"/>	<input type="checkbox"/>
Receptionist's wages.	<input type="checkbox"/>	<input type="checkbox"/>
Annual repairs to engine crane.	<input type="checkbox"/>	<input type="checkbox"/>
Brake pads.	<input type="checkbox"/>	<input type="checkbox"/>



Test your understanding 6

JJ Green is a furniture manufacturer. Classify the following costs by nature (direct or indirect) in the table below.

Cost	Direct	Indirect
Cost of wood and screws used.	<input type="checkbox"/>	<input type="checkbox"/>
Royalty payable as a result of using a particular chair design.	<input type="checkbox"/>	<input type="checkbox"/>
Oil used to lubricate the machines.	<input type="checkbox"/>	<input type="checkbox"/>
Salesmen's salaries.	<input type="checkbox"/>	<input type="checkbox"/>

3.5 Cost classification by behaviour – fixed and variable

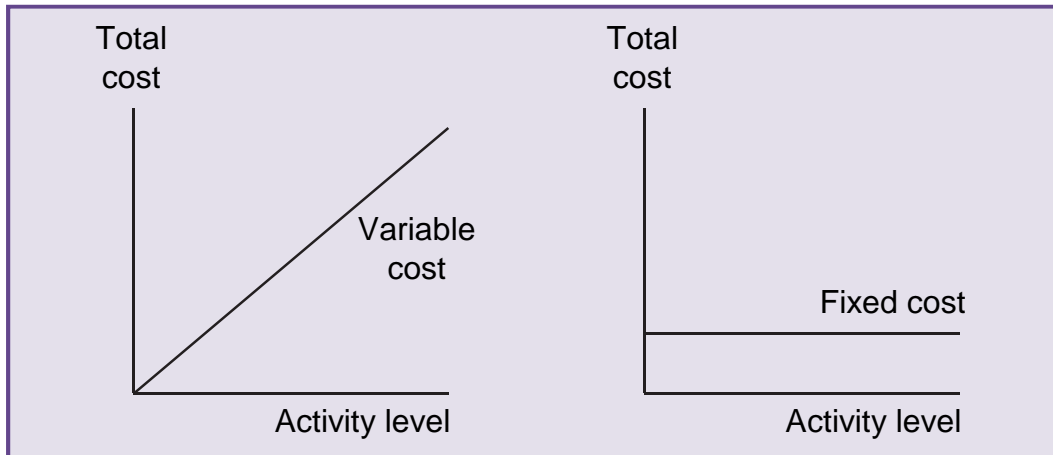
For budgeting purposes, management needs to be able to predict **how costs will vary with differing levels of activity** (i.e. the number of cost units).

For example, if a furniture manufacturer expected to produce 1,000 chairs in a particular month, what should the budget be for the costs of wood, labour, oil, selling costs, factory heat and light, manager's salaries, etc.? How would these costs differ (if at all) if it expected to produce 2,000 chairs?

To make budgeting and forecasting easier, costs are split into the following categories:

- **Variable costs** are those that vary (usually assumed in direct proportion) with changes in level of activity.
For example, if you make twice the number of chairs then the amount (and hence the cost) of wood used would double.
- **Fixed costs** are not affected by changes in activity level.
For example, the rent on the factory.

ELEMENTS OF COSTING

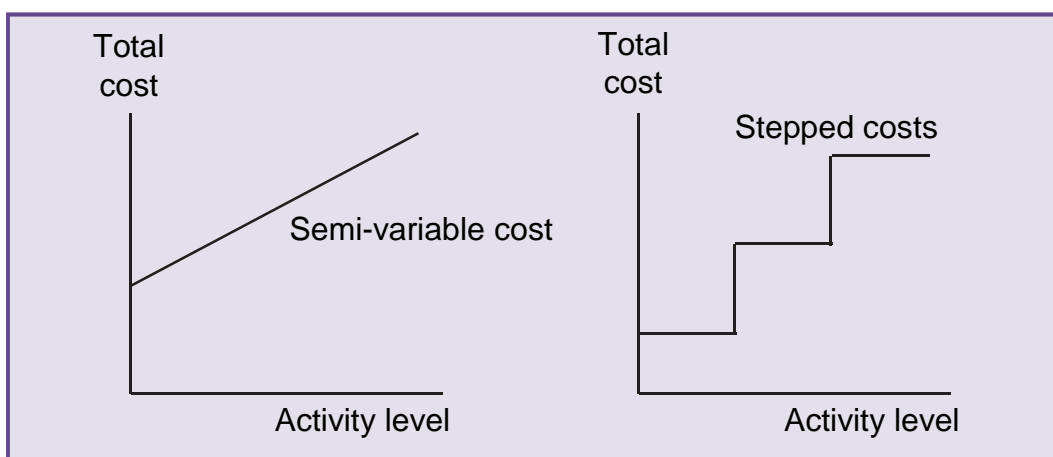


- **Semi-variable costs** are those that have a fixed element and a variable element.

For example, the cost of electricity for the factory has a fixed element relating to lighting and a variable element relating to power used on the production line.

- **Stepped costs** are costs that remain fixed up to a particular level of activity, but which rise to a higher (fixed) level if activity goes beyond that range.

For example, a firm may pay £40,000 per year to rent a factory in which they can produce up to 1 million units of product per year. However, if demand increases to more than 1 million units a second factory may be required, in which case the cost of factory rent may step up to, say, £80,000 per year and then be constant until we want to make 3 million.



It therefore stands to reason that **Total costs = Fixed costs + Variable costs**

Or alternatively, **Total costs = Fixed costs + (Variable cost per unit × number of units).**



Test your understanding 7

The Grande is a hotel in Wales. Classify the following costs by their behaviour in the table below.

Cost	Fixed	Variable	Semi-variable
Manager's salary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cleaning materials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food served in the restaurant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electricity – includes a standing charge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cleaner's wages (paid per room cleaned).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Test your understanding 8

Which of the following best describes a 'pure' fixed cost?

A cost which:

- A represents a fixed proportion of total costs
- B remains at the same level up to a particular level of output
- C has a direct relationship with output
- D remains at the same level whenever output changes



Test your understanding 9

Identify the following statements as either true or false in the table below.

	True	False
Semi-variable costs have a fixed and variable element.	<input type="checkbox"/>	<input type="checkbox"/>
Fixed costs change directly with changes in activity.	<input type="checkbox"/>	<input type="checkbox"/>
Variable costs change directly with changes in activity.	<input type="checkbox"/>	<input type="checkbox"/>

3.6 Combining cost classifications

In some tasks in your assessment you may have to use more than one classification at a time. For example

- Factory rent is a production cost that is fixed (or stepped) and indirect.
- Direct materials are a production cost that is also variable.
- Direct labour is not necessarily a variable cost. For a car repair service, for example, it is possible to identify how much time a particular repair takes (by using job cards to record time) but the mechanic may be on a fixed salary per month.
- Sales commission is a variable selling and distribution cost.



Test your understanding 10

Identify the following statements as either true or false in the table below.

	True	False
All direct costs are variable.	<input type="checkbox"/>	<input type="checkbox"/>
All overheads are fixed.	<input type="checkbox"/>	<input type="checkbox"/>
Depreciation is always classified as an administrative cost.	<input type="checkbox"/>	<input type="checkbox"/>
All selling costs are fixed.	<input type="checkbox"/>	<input type="checkbox"/>

3.7 Why do organisations need to classify costs in different ways?

As you have seen in the previous sections, costs can be classified by nature, element, behaviour, or by function. Why do organisations need these different classifications?

The answer is that the different classifications will be used by the organisation for different purposes.

- **Classifying costs by element or nature** (materials, labour or overheads/direct and indirect costs) will be particularly useful for management accountants to help the business calculate how much each unit of product has cost to make. This can help the business decide how much to sell the product for.
- **Classifying costs by behaviour** (fixed, variable, stepped or semi-variable) will also be of use to management accountants, especially for the purpose of budgeting what the business' costs will be in future periods. For instance, if the business expects to double the number of units it makes next year, it will know that this will not affect the level of fixed costs, but would expect to double variable costs.
- **Classifying costs by function** (production, selling and distribution or administration) is of particular use to financial accountants, as it will help them to see the overall level of expenditure in each part of the organisation and therefore calculate total profit levels. This will then form part of the organisation's year-end financial accounts – in particular the income statement.

4 The high-low method

4.1 High-low method

If a semi-variable cost is incurred, it is often necessary to estimate the fixed element and the variable element of the cost for the purposes of budgeting.

Alternatively, if a question only gives information about **total** costs, without breaking that amount down into fixed and variable elements, it can be difficult to identify what costs will be for other levels of output.

Both of the above can be done by using the high-low method.

Remember:

Total cost = Fixed cost + (Variable cost per unit × number of units)



Example 1

A factory has incurred the following power costs in the last three months with different levels of production in each month:

	Production units	Power costs £
February	16,000	16,500
March	18,000	17,500
April	24,000	20,500

What are the fixed and variable elements of the power cost?

You should follow 3 basic steps to answer this problem:

Step 1

Find the highest and lowest levels of production (activity) and their related costs.

		Units	Cost £
High	April	24,000	20,500
Low	February	16,000	16,500

Step 2

Find the variable cost element by determining the increased power cost per unit between highest and lowest production levels.

		Units	Cost £
High	April	24,000	20,500
Low	February	16,000	16,500
	Difference	8,000	4,000

The power cost has increased by £4,000 for an increase in 8,000 units of production. The variable power cost is therefore:

$$\frac{£4,000}{8,000} = £0.50 \text{ per unit}$$

Step 3

Using either the highest or the lowest production level (from step 1) find the fixed cost element by deducting the total variable cost from the total cost.

		£
April	Total cost	20,500
	Total variable cost $24,000 \times 0.5$	(12,000)
		<hr style="width: 50%; margin-left: auto; margin-right: 0;"/>
		8,500
		£
February	Total cost	16,500
	Total variable cost $16,000 \times 0.5$	(8,000)
		<hr style="width: 50%; margin-left: auto; margin-right: 0;"/>
		8,500

You can then use this information to calculate costs for any other levels of output or activity, as seen below:

If production levels of 30,000 units are anticipated next month, what is the expected power cost?

The semi-variable power cost consists of the fixed cost (£8,500) and a variable cost per unit (£0.50). Therefore for an activity level of 30,000 units the total cost is predicted to be:

		£
	Variable cost $30,000 \times 0.50$	15,000
	Fixed cost	8,500
		<hr style="width: 50%; margin-left: auto; margin-right: 0;"/>
	Total cost	23,500
		<hr style="width: 50%; margin-left: auto; margin-right: 0;"/>



Test your understanding 11

The electricity used in a factory has a semi-variable cost behaviour. The manager wants to know how much electricity to budget for if he was to make 75 units.

Units	Total cost £
10	120
50	200
100	300

- A £150
- B £100
- C £250
- D £137.50

5 Summary

In this introductory chapter we looked at some of the basic principles and terminology used in cost and management accounting. Costs can be classified in a variety of different ways for different purposes.

The basic classification is into materials, labour and expenses, each of which will be dealt with in detail in the following chapters.

A further method of classification of costs is between direct and indirect costs. You need to be aware of the difference between cost units (individual units of a product or service for which costs can be separately ascertained) and cost centres (locations or functions in respect of which costs are accumulated).

For decision-making and budgeting purposes, it is often useful to distinguish costs according to their behaviour as production levels change. The basic classifications according to behaviour are fixed and variable costs although there are also stepped costs and semi-variable costs.

The High-Low method can be used to identify fixed costs and variable costs when total costs are given for different levels of output.

6

Further Test your understanding exercises



Test your understanding 12

The table below lists some of the characteristics of financial accounting and management accounting systems. Indicate the characteristics for each system by putting a tick in the relevant column of the table.

Characteristic	Financial accounting	Management accounting
Content can include forecasts.	<input type="checkbox"/>	<input type="checkbox"/>
Looks mainly at historical information.	<input type="checkbox"/>	<input type="checkbox"/>
Format must conform to statute and accounting standards.	<input type="checkbox"/>	<input type="checkbox"/>
Any format can be used.	<input type="checkbox"/>	<input type="checkbox"/>
Mainly produced to help managers run and control the business.	<input type="checkbox"/>	<input type="checkbox"/>
Would be used by potential investors thinking of buying shares.	<input type="checkbox"/>	<input type="checkbox"/>
Produced for shareholders.	<input type="checkbox"/>	<input type="checkbox"/>



Test your understanding 13

Zenawi plc makes garden furniture.

Classify the following costs by function in the table below.

Cost	Production	Admin	Distribution
Purchases of wood to make chairs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depreciation of delivery vans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HR director's bonus.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salaries of production workers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electricity bill for workshop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insurance of sales team laptops.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Test your understanding 14

Kim and Yoshiro are the founding partners of an accountancy firm. They employ 20 accountants and have over 100 clients.

Classify the following costs by nature (direct or indirect) in the table below.

Cost	Direct	Indirect
Travelling costs for when staff visit clients.	<input type="checkbox"/>	<input type="checkbox"/>
Rechargeable accountants' time.	<input type="checkbox"/>	<input type="checkbox"/>
Office heating costs.	<input type="checkbox"/>	<input type="checkbox"/>
Recruitment costs.	<input type="checkbox"/>	<input type="checkbox"/>
Accountants' time recorded as 'general admin.' on time sheets.	<input type="checkbox"/>	<input type="checkbox"/>



Test your understanding 15

Elite Cars is a family-run business specialising in the sale, hire, servicing and repair of classic cars.

Classify the following costs by their behaviour in the table below.

Cost	Fixed	Variable	Semi-variable
Sales staff pay.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motor oil used in servicing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depreciation of premises.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mechanics' pay (salaried).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electricity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Test your understanding 16

Jackson makes tables. His recent monthly production figures have been as follows:

Month	Units	Cost (£)
July	390	3,720
August	245	2,560
September	210	2,280
October	305	3,040

How much should he budget for in terms of costs for next month, given that he anticipates making 340 tables?

Test your understanding answers

 Test your understanding 1

Characteristic	Financial accounting	Management accounting
Content can include anything useful.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
To help managers run the business.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Formats dictated by accounting rules.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Looks mainly at historical information.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Produced for shareholders.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

 Test your understanding 2

Student hours = Cost unit
 Computer room and library = Cost centres

 Test your understanding 3

Cost	Production	Admin	Distribution
Purchases of plastic to make phone cases.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IT director's bonus.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Depreciation of factory building.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salaries of production workers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insurance of sales team laptops.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Test your understanding 4

Cost	Materials	Labour	Overheads
Tins of baked beans.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lighting costs.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Depreciation of freezers.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Checkout staff salaries.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flour used in in-store bakery.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Test your understanding 5

Cost	Direct	Indirect
Engine oil used in services.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Receptionist's wages.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Annual repairs to engine crane.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Brake pads.	<input checked="" type="checkbox"/>	<input type="checkbox"/>



Test your understanding 6

Cost	Direct	Indirect
Cost of wood and screws used.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Royalty payable as a result of using a particular chair design.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Oil used to lubricate the machines.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Salesmen's salaries.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note: You may have argued that oil was direct as you could calculate how much oil is needed per item made. However, it would be very difficult to determine the oil need for a **particular** item of furniture; hence the correct answer is indirect.



Test your understanding 7

Cost	Fixed	Variable	Semi-variable
Manager's salary.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cleaning materials.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Food served in the restaurant.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Electricity – includes a standing charge.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cleaner's wages (paid per room cleaned).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



Test your understanding 8

D – Pure fixed costs remain exactly the same in total regardless of the activity level.



Test your understanding 9

	True	False
Semi-variable costs have a fixed and variable element.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fixed costs change directly with changes in activity.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Variable costs change directly with changes in activity.	<input checked="" type="checkbox"/>	<input type="checkbox"/>



Test your understanding 10

	True	False
All direct costs are variable.	<input type="checkbox"/>	<input checked="" type="checkbox"/> Note 1
All overheads are fixed.	<input type="checkbox"/>	<input checked="" type="checkbox"/> Note 2
Depreciation is always classified as an administrative cost.	<input type="checkbox"/>	<input checked="" type="checkbox"/> Note 3
All selling costs are fixed.	<input type="checkbox"/>	<input checked="" type="checkbox"/> Note 4

Note 1: Whereas direct materials are usually variable, direct labour may be fixed – e.g. lawyers may be on a fixed salary but produce detailed timesheets so a direct labour cost can be calculated for each client.

Note 2: Electricity is usually classified as an overhead but will have a variable element. If more units are made on a production line, then more electricity will be used (hence variable). However, it may not be possible or practical to measure exactly how much electricity is used to make a particular unit (hence indirect).

Note 3: For example, depreciation on production machinery would be included in cost of sales.

Note 4: Sales commission would be a variable selling cost.



Test your understanding 11

The answer is **C – £250**

Step 1

Find the highest and lowest levels of production and their costs:

	Units	£
High	100	300
Low	10	120
Difference	90	180

Step 2

Find the variable cost element by considering the differences:

Variable cost per unit = £180 ÷ 90 units = £2/unit

ELEMENTS OF COSTING

Step 3

Using either the highest or the lowest production level (from step 1) find the fixed cost element by deducting the total variable cost from the total cost.

For 100 units, fixed costs = £300 – (100 × £2) = £100

Therefore for 75 units total costs are £100 + (75 × £2) = £250



Test your understanding 12

Characteristic	Financial accounting	Management accounting
Content can include forecasts.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Looks mainly at historical information.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Format must conform to statute and accounting standards.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Any format can be used.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mainly produced to help managers run and control the business.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Would be used by potential investors thinking of buying shares.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Produced for shareholders.	<input checked="" type="checkbox"/>	<input type="checkbox"/>



Test your understanding 13

Cost	Production	Admin	Distribution
Purchases of wood to make chairs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depreciation of delivery vans.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HR director's bonus.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Salaries of production workers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electricity bill for workshop.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insurance of sales team laptops.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Test your understanding 14

Cost	Direct	Indirect
Travelling costs for when staff visit clients.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Rechargeable accountants' time.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Office heating costs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Recruitment costs.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Accountants' time recorded as 'general admin.' on time sheets.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ELEMENTS OF COSTING



Test your understanding 15

Cost	Fixed	Variable	Semi-variable
Sales staff pay.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Motor oil used in servicing.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Depreciation of premises.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mechanics' pay (salaried).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electricity.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Test your understanding 16

The highest output occurs in July, the lowest in September:

Month	Units	Cost (£)
July	390	3,720
September	210	2,280
Difference	180	1,440

The variable cost per unit is therefore $£1,440 \div 180 \text{ units} = £8$

For July, fixed costs are $£3,720 - (390 \times £8) = £600$

Therefore to produce 340 tables will cost $£600 + (340 \times £8) = \mathbf{£3,320}$