

Unit 11 : Deciding on a format

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Introduction

An editor has to bridge the gap between writers and the design and print department. We can describe course planning and writing as course development, and design, layout, typing and printing as course production. The editor works with the writer to develop a course, and also with designers and printers on production. The range of work expected of editors will vary from institution to institution.

At the end of the unit, you will be able to:

- * choose a suitable page size and layout for a course, and decide how to organise material in booklets;
- * arrange or design illustrations and textual features such as frames;
- * explain or describe the factors which will influence these decisions;
- * understand the potential and constraints of different kinds of printing facilities, and make the best use of them.

The unit will take about 3 hours to complete, and the assignment will take a further 2 hours. You will find it useful to have at hand some samples of materials produced by your institution, to compare with the examples given here.

1. Dividing a course into books

Usually, a distance-teaching text is divided into a number of units. Do you print these units in separate booklets, or do you group several units in one volume? Do you have many booklets to a course or just a few?

When units are in separate booklets, a student may feel a greater sense of achievement each time he completes a unit. A single long book can be threatening. If units are printed separately, it also means it is easier and cheaper to correct or revise a section of the course.

On the other hand, it costs more to print each unit separately, as each set of units must be folded, and stapled or bound. The packing and despatch of units is more difficult, and students are more likely to be sent the wrong material. Often, an institution plans to send out each unit separately. Students receive a new one each time they send in an assignment. In practice, this is laborious and costly, and prone to errors in despatch. Frequently, the institution ends up sending out batches of units after all.

2. Choosing a page size

Each page in this book is A4 size. An open spread of two pages is A3, while a page folded in half along the longer side becomes A5. A4 and A5 sizes are both commonly used. Which size is preferable?

A4 size is more frequently used. One advantage is that you can put more material on each page. Another is that you can easily fit pictures and other features on a page, as it is so large. On the other hand, an A4 book can be awkward to handle. It does not always fit on a bookshelf, and you cannot carry it in your pocket. It can also look rather large and forbidding to a learner who feels insecure.

A5 size is a convenient pocket size. It can be difficult to arrange material on the small pages, and often an exercise or other feature has to span two pages, awkwardly. For adults doing basic courses, the smaller book can be attractive and approachable.

If your book is a workbook, that is a book where students write in answers, A4 is almost certainly better. An A5 page does not leave much room for handwriting.

3. Page layout

We will consider the two common sizes of page, A5 and A4, and look at different ways of arranging the words on the page.

3.1 A4 portrait

'Portrait' means that the page has its shorter sides at top and bottom, like this page.

We can type across the page, as we have done in this book. An advantage is that we waste no paper. We have a margin that can be used for signs and markers, if we want. A disadvantage is that if we use small type, as we might with a typesetter or composing machine (see section 6 below), each line will contain many words, and the text will become a little difficult to read. Example 31 shows this. (Remember all A4 examples have been slightly reduced for this printing.)

Fig. 1:1 shows how an un specialised cell appears under a student microscope and under an electron microscope which reveals much more detail. Bear in mind that there may be other structure which cannot be seen even with the most powerful instruments which we possess at this time.

Draw both diagrams yourself.

All cells are composed of a substance called *cytoplasm*. This is a very complex solution of many substances in water. Some of the dissolved substances are small, fairly simple molecules such as salts and sugars whereas others are very large and complicated molecules such as proteins. These proteins are very important in the life of the cell and are largely responsible for the physical properties of the cytoplasm e.g. they give it an appearance and consistency similar to raw egg white which, as you know, contains a lot of protein. *

Many of the cytoplasmic proteins are *enzymes*. These are substances which are able to bring about chemical changes within living cells and therefore are responsible for all the reactions constituting 'life'. Some enzymes break down our food into its basic units and provide us with the energy we need for movement etc. Other enzymes rebuild these basic food units into our own muscle, bones, blood etc. There are hundreds of different types of enzymes in the human body and most are found in the living cytoplasm of the cells. Therefore please avoid the common mistake of thinking that cytoplasm is just a 'watery solution'.

One of the jobs carried out by the cytoplasmic enzymes is that of making membranes which are used to construct the rest of the cell. As Fig. 1:1b shows the cell itself is surrounded by a membrane and contains numerous bodies such as the nucleus and the mitochondria which also have membranes. These membranes are more than mere boundaries. They actually govern the passage of substances into and out of the cell and into different parts of the cell.

The various bodies within the cell are designed to carry out specialised work and contain concentrations of special enzymes and chemicals, which need to be kept together and separate from the cytoplasm in order to work most efficiently. The largest body is the *nucleus*, surrounded by the *nuclear membrane*. Inside the membrane is dense material composed of protein and *nucleic acid*, called *chromatin*. Between cell divisions the nucleic acid controls all the activity of the cell. When the cell divides, the chromatin changes its shape from a very long tangled thread to 46 short thick bodies called *chromosomes*. These carry the inherited characteristics at various points along their length (the genes). Just before division a copy of each chromosome is made and the two daughter cells each receive a complete set of chromosomes with their genes. Thus inherited characteristics are passed on faithfully from cell to cell (and ultimately from parents to offspring). To sum up, the nucleus has two functions. It *controls* the cell's activity and it *transfers* genetic information during cell division.

Many types of smaller bodies are found in the cell but we only need consider the *mitochondria*. These have a double membrane boundary and contain special enzymes which act on raw materials, produced in the cytoplasm, and break them down to release energy. This energy is not wasted but is converted into a form which the cell can use for growth, movement, work etc. Not surprisingly the mitochondria have been compared to a hydroelectric power station which traps the otherwise wasted energy of a waterfall and converts it into electrical energy which can be used for heating, lighting etc. We can say that their function is to *produce useful energy*, and they are found in all cells but in greater numbers in cells which work hard such as muscle cells.

The cytoplasm plus the membranes and bodies it produces make up the living material of the cell and are collectively referred to as *protoplasm*. This is a term which was first coined in the days when microscopes were inadequate to show details of its structure and it tends to be less used nowadays. If a definition of the term is required we might say that it is all the living material of which cells are composed, including the cytoplasm, the membranes and various bodies (e.g. nucleus and mitochondria). Because of its high proportion of protein it is very sensitive to conditions which destroy proteins and therefore is killed by heat, acids and many other substances. We can see that it is rather unstable and that this should help us to appreciate why our bodies need to maintain constant internal conditions.

Now make notes on this section, using Chapter 1 of P.

1:2 Specialised Cells

All cells have the components just discussed, but many have modifications of shape and structure which enable them to carry out one particular job. For greater efficiency specialised cells carrying out the same function are grouped together to form a *tissue*, e.g. muscle tissue, bone, nerve.

We need to study several types of tissue to see how the basic plan is modified. Very often tissue cells produce a substance which surrounds them and helps to carry out their function. This is known as a *matrix*. It is particularly prominent in tissues which give support or bind organs together e.g. bone, cartilage, connective tissue.

Sometimes the page is arranged with two or three columns of print, like Example 32. With this layout, you can put a lot of material on a page, and avoid long lines. It is a useful layout for fairly advanced and lengthy texts. The pages look rather dense and forbidding for less experienced students. To do this well, you need a composer with a small typeface. With an ordinary typewriter the lines look too short. You need, as well, to justify the text, that is, type it with a straight right-hand edge. The text in Example 33 is unjustified, leaving an irregular space between the columns. The result is messy and confusing.

Sometimes the page is arranged with text running only part of the way across, usually about two-thirds across, as in Example 34. This arrangement is pleasing to look at, and the lines are a good length for easy reading. A disadvantage, however, is that a lot of paper is used in the printing. Up to one-third of every page is left blank. The empty margins can be used for diagrams or other illustrations, for signs and headings, and even by the students, for making their notes. However, much space remains unused, a severe problem when paper is expensive or scarce. In Example 34 the margin has been used for a list and a sign. If the space were filled with such features, the page would look overcrowded.

3.2 A5 portrait

Text is normally typed straight across an A5 page, which is too small to divide into columns. The pages are a good size for easy reading. Example 35 shows a complete A5 page.

3.3 A4 landscape

'Landscape' means that the page has its longer sides at the top and bottom, as in Example 36. This page illustrates a good use of a landscape layout. You will see that there are three columns, with a drawing in the middle, and a text on one side in English and on the other in Setswana. The space has been well used to arrange a bilingual text.

You can also arrange a landscape A4 page in 2 columns. You would never take your print right across the page, as the lines would be far too long.

An A4 landscape book is awkward to handle, if it has a soft cover. If you try to read it without a table, it will flop about.

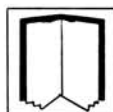
3.4 A5 landscape

This is as good as A5 portrait, if you use a typewriter or a large size of print. If you use small print, your lines of text will be too long. This layout is sometimes used very effectively for beginners' texts, and can also be used where the students need space for handwriting, as Example 37 shows. The page in Example 37 is slightly larger than standard A5 size.

The commonest layouts, and probably the best for educational texts, are A4 portrait with text going right across the page (typewriter) or two-thirds across (typeset). I would like to see the A5 portrait layout used more frequently, as it is attractive and easy to use.



1. Read the poems in your selection with great care making full use of the notes given and our own notes above. On this occasion, as the poet is difficult at the beginning, we suggest that you answer in writing the questions under the letter 'A' in the notes on page 120-8, at least for some of the poems (not to be submitted to your tutor).
2. Make your own notes on each poem, and add your opinion of it.
3. If you want to go further, get the Penguin Hopkins edited by W. H. Gardner. This is a superb collection of all the poems and a good selection of the prose, thoroughly and sensitively annotated.



SUGGESTED ANSWERS TO THE COMPREHENSION RESPONSE AND APPRECIATION QUESTIONS

Here are our suggested answers to the questions set in Unit 20, with a few notes. Please remember that while these would be considered satisfactory there may be other equally good answers.

1.
 - (a) "I was growing less timid ... squalor and brutality." (paragraph 1).
 - (b) "And what a glorious half mile ... to Surrey Lane." (paragraph 4)
 - (c) "I was delighted to lie there ... visits to the park." (paragraph 5).

(Paragraph 2 also makes an implicit contrast, and the opening of paragraph 4: but the above examples are perhaps better.)
2. He refers to the kind of "picturesqueness" which impresses only by its squalor and brutality; poverty is often picturesque, but only in a "negative" sense – it is never beautiful in the ordinary sense.
3. He must have taken his country holidays in late summer, August or September, as he had never "seen nature in springtime and high summer."
4.
 - (a) dangerous, risky, difficult to cross.
 - (b) the metal structure is finely designed, slender, decorative and ornamental.
 - (c) the leaves are gold, which suggests a treasure-house; moreover, they are precious to him because of their beauty.
5. He almost stops having internal pains and he begins to run instead of walking to and from school.
6. He longs for solitude so that he can savour his new "wonders": at the same time he wants company so that he can tell others about them. His childhood has been in some ways under-privileged, and the novelty of his new surroundings is so great that he is "in a whirl" of excitement; hence he wants both solitude, to experience his surroundings more deeply, and company, because he believes they will appear equally novel to everyone else.
7. "Riches", "enchanted", "wonders", "drama of new experience", "glorious", "delighted", "flinging up my arms as I ran", "crazed" (there are several others).

8.
 - (a) "Transplanted" makes us think of a living organism, replanted in more promising soil and surroundings.
 - (b) "Towering" stresses the way in which the trees shoot up and look vast to the small boy beneath them.
 - (c) "Crests" suggests a living, moving head like the crest of a bird's head, swaying in the wind.



ASSIGNMENT K

The Assignment which follows is in two parts, based on Paper I and Paper II of the AEB examination in English Language you'll be taking. Don't start till you have 1½ hours to spare for Paper I. You'll need a break before tackling the second paper, and then you'll need 1¼ hours.

In our final unit we'll be giving you advice on taking the actual examination. Most of the rest of the course will be spent revising, but we won't be going over in detail much of the work we've done for the language papers, as these involve skills you've been building up gradually throughout the course; by now, you'll be very competent in some areas while being aware of your own weaknesses in others.

So this assignment, while it is a practice run for the exam, is also a revision exercise; if you make mistakes now – in planning your time, in discovering a weakness over a type of question – there's still time to learn from your mistakes. You'll need to go through your tutor's comments on this assignment very carefully, and use any specific suggestions he may make to help you in your final exam preparation.

Don't read on any further until you are ready to tackle the first paper.

Writing this Assignment

Please take this paper in conditions as close as you can to examination conditions, i.e.

1. Spend exactly 1½ hrs, at a stretch if you possibly can, on Paper I (Essay); and 1¼ hrs on Paper II.
2. Make no use of reference books or course material while you are answering the papers.
3. Plot the time carefully, so that your essay is finished and revised in the time, and you answer all the necessary questions in Paper II.
4. In the event of an unavoidable interruption, point this out to your tutor. If a prolonged interruption does occur, allow yourself extra time for reading through the work you had done before the break.

Paper I (1½ hours)

Write a composition on ONE only of the following subjects. Put the number of the subject chosen at the head of your paper.

1. Roads.
2. Moving House.
3. The future of *either* (a) The Cinema *or* (b) The Theatre.
4. The delights of one of the following pursuits: (a) Birdwatching (b) Hiking (c) Camping (d) Gardening. "A Woman's Place is in the Home."
5. Using Richard Church's account of the move of house from Battersea to Dulwich as a "starting

We can take the MOLE idea one step further. So far we have considered fundamental particles of matter, e.g. atoms, molecules, ions, but we can apply the idea to the fundamental electrical particles which produce the charges on ions viz. the electrons. Experiment shows that to produce one gram-atom of an element in electrolysis requires either 96,500 coulombs or some simple multiples of that quantity of electricity. e.g. it takes 96,500 coulombs to liberate 1 g-atom of silver from silver nitrate solution, but 193,000 to liberate 1 g-atom of copper from copper (II) sulphate solution.

To liberate one atom of copper requires $\frac{193,000}{N}$ coulombs.

To liberate one atom of silver requires $\frac{96,500}{N}$ coulombs.

If the quantity needed to liberate one atom of silver is "e" then it takes 2e to liberate an atom of copper. "e" can be regarded as an "atom" or fundamental particle of electricity. It is in fact, the charge on a single electron.

$e = F/N$ where F is a Faraday and N is the Avogadro number.

A Faraday = 96,500 coulombs. Another way to look at the Faraday is to say that it is N electrons i.e. The Faraday is a MOLE of electrons.

Applications of the MOLE idea

It is possible to write chemical equations which balance purely from a knowledge of the chemical formulae of the reactants, but there is no guarantee that such a reaction takes place. In practice every chemical equation has to be tested by qualitative analysis. Consider an example. Experiment shows that 0.265 g of aluminium react with 2.34 g of bromine. Assuming the formula of bromine to be Br₂ and given that Br = 80 and Al = 27, determine the equation of the reaction concerned.

1 g-atom of Al = 80 g,

1 g-molecules of bromine = 2 x 80 = 160.

In our reaction $\frac{0.265}{27}$ g-atoms of Al react with

$\frac{2.34}{160}$ g-moles Br₂

Roughly . . . $\frac{1}{100}$ g-atom Al reacts with

$\frac{1.5}{100}$ g-moles of Br₂

or

ONE g-atom of aluminium reacts with 1.5 g-moles Br₂

Hence . . . TWO g-atoms of aluminium react with THREE g-moles Br₂

The left hand side of the equation is 2Al + 3Br₂ =

The whole equation will be 2Al + 3Br₂ = 2AlBr₃.

If we know the equation for a reaction or are given it in an examination it is possible to use it to calculate the theoretical yield of the products. This is obviously of importance in the chemical industry.

Example

Given that Ca = 40, C = 12, O = 16 and that the gram. molecular volume (G.M.V.) is 24 L under room conditions, calculate the weight of quicklime produced and the volume of CO₂ released when 10 g of chalk is strongly heated in a current of air.

The equation is:

CaCO ₃	=	CaO	+	CO ₂
1 g formula weight of chalk	=	1 g formula weight of quicklime	+	1 g mole of carbon dioxide
= 100 g		= 56 g		= 44 g or 24 L

Therefore 10 g of chalk will yield 5.6 g of quicklime and 2.4 L of carbon dioxide gas.

We could have equally well worked in tons instead of grams as far as the weight side of the problem is concerned.

THE MOLE IDEA (Practice exercise)

This is an exercise on the Mole Idea. Try and complete it without consulting the previous section.

You will need to know H = 1, O = 16, S = 32, N = 14, Fe = 56, Mg = 24, Cl = 35.5.

The quantity 32 g of sulphur, 56 g of iron etc., is called a *gram-atom* of that element.

What property will "gram-atoms" of ANY element have in common?

They will all

If we go on to consider compounds, we speak of formula weights, e.g. the formula weight of water H₂O = 2H + O = 2 + 16 = 18.

Consider the formula weights of the gases NH₃, SO₂, and H₂S.

They are and respectively. if the gases are all at room temperature and pressure, their formula weights will all contain and occupy the same viz litres.

7h

EXAMPLE 33: From 'Chemistry GCE 'O' level', National Extension College, Cambridge, UK, Volume 1, p.7h

The parts of the electrical circuit by which the current enters and leaves the electrolyte are called *electrodes*, the one connected to the positive source of current is called the *anode*, the one connected to the negative side of the current source is called the *cathode*.

Movement of material takes place in the electrolyte when current is flowing. The entities which move in this way are called ions. Cations move to the cathode, anions to the anode.

All solutions of salts in water are electrolytes, as are aqueous alkalis and acids. Let us look first at acids.

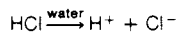
2.2 Acids and bases

Some common acids

Acid	Formula
hydrochloric acid	HCl
sulphuric acid	H ₂ SO ₄
nitric acid	HNO ₃
'carbonic acid'	H ₂ CO ₃
phosphoric acid	H ₃ PO ₄
sulphurous acid	H ₂ SO ₃
nitrous acid	HNO ₂

Acids

When hydrochloric acid dissolves in water it forms a mixture containing positive hydrogen ions and negative chloride ions:



When this solution is electrolysed (i.e. subjected to electrolysis) the hydrogen ions move to the cathode because they carry an electric charge which is opposite to that borne by the cathode, opposite electrical charges finding each other attractive. The chloride ions move the other way.

Ions which move to the cathode, are positively charged, e.g. H⁺, and are called cations. Those which move to the anode, are negatively charged and are called anions. Other physical properties of hydrochloric acid tell us that this splitting into ions or ionisation is the normal state of the acid, it's not just something which happens under the influence of the electric current. These ions are called the hydrogen ion, which is often loosely spoken of as a 'proton' and the chloride ion.

You will have noted that ionisation has occurred as soon as one hydrogen ion has left the molecule of an acid which contains more than one. That means that acids containing more than one hydrogen atom can give rise to more than one kind of anion. The acids listed above will therefore produce the following anions:

Acid	Anions formed	Name of anion
sulphuric acid	HSO ₄ ⁻	bisulphate
	SO ₄ ²⁻	sulphate
nitric acid	NO ₃ ⁻	nitrate
'carbonic acid'	HCO ₃ ⁻	bicarbonate
	CO ₃ ²⁻	carbonate
phosphoric acid	H ₂ PO ₄ ⁻	dihydrogen phosphate
	HPO ₄ ²⁻	hydrogen phosphate
	PO ₄ ³⁻	phosphate
sulphurous acid	HSO ₃ ⁻	bisulphite
	SO ₃ ²⁻	sulphite
nitrous acid	NO ₂ ⁻	nitrite

In the past many definitions have been given for what an acid is, but now it is generally agreed that an acid is a *compound which produces hydrogen ions in solution*.

HEK Activity 1



At this point you should work through the first set of practical exercises associated with this unit which are described in the HEK booklet.

EXAMPLE 34: From 'An Introduction to Environmental Chemistry', The Open University, Milton Keynes, UK, 1985, Course T234, Unit 3, p.12

THE OX - CART

- 63.** An ox-cart is very useful for carrying manure, harvests, wood and water around the farm. You can also transport things for other farmers. Some carts have iron wheels while others have tyres. Two oxen can pull a cart loaded with up to 1,000 kg of goods.



The ox-cart is useful for carrying many things

LAND

- 64.** In general, it is best to have long fields so that your animals can have a long pull before they turn at the end and plough back. It is best to have straight sided fields. The fields should be well cleared and all the stumps and big roots dug out.

You cannot use an ox-plough on fields with tree stumps. You must dig them out.

THINNING

You may have many seedlings growing close together. When these seedlings are 5 cm high or the length of your first finger, you should do your first thinning.

Begin at one end of the beetroot row by pulling out a small group of seedlings every 5 cm. Do this until you have come to the other end of the row.

In 3 - 4 weeks you should thin the beetroots a second time. Begin at one end of the row by pulling out 1 or 2 beetroot plants in each of the small groups.

A third thinning is necessary in 3 weeks. You should leave about 10 cm between each beetroot plant after this thinning.

The plants you have pulled out in the second and third thinning may be large enough to eat.

PESTS AND DISEASES

Cutworm - Cutworms eat the stems of your beetroots at the ground level. When you find a dead seedling dig carefully around the seedlings' roots to find the cutworm. Destroy it with your fingers.

GO FOKOTSA DIJWALO

Dijwalo tsa gago di ka ne di kgotlhagane thata. Fa di le boleele jwa 5 cm kgotsa monwana wa gago o monnye o tshwanetse wa fokotsa lwa ntlha.

Simolola kwa bofelong jwa tselana ya dibitiruti o ya le yone ka boleele mme lobaka longwe lo longwe lwa 5 cm o kumole di se kae. Dira jalo go fitlha o tsena kwa bofelong jwa tselana.

Mo bekeng tse tharo go ya tse nne o tshwanetse wa tomola tse dingwe gape. Simolola kwa bofelong jwa tselana mme o tle le yone o kumola e le nngwe fale kgotsa di le pedi fale mo di kgobokanyeng teng.

Go tlhokafala phokotso ya boraro morago ga beke tse tharo. O tshwanetse go katologanya dijwalo sebaka sa 10 cm morago ga go fokotsa mo.

Ditlhathšana tse o di kumotseng ka phokotso ya bobedi le ya boraro di ka ne di godile di siametse go jewa.

DIJI LE MALWETSE

Cutworm - Dibokwana tse di ja dikutu kwa tlase. Fa o bona sejwalo se se suleng epa ka kelotlhoko ka fa thoko ga medi ya sejwalo go fitlhela o bona sebokwana seo. Se bolaye ka go se tshwetla ka menwana.



QUESTIONS

1. What is Mr. Ibikunle?

2. Who is Mr. Ibikunle staying with?

3. Who is visiting the north of Nigeria for the first time?

4. What is Yusuf doing today?

5. What are the Moslems celebrating?

Correct your answers now.
The correct answers are on Page 10
of your ANSWER-BOOK.

EXAMPLE 37: From 'It's happening NOW', English Language Course-Book Module 1 Units 1-3, National Teachers' Institute, Kaduna, Nigeria, 1979, p.17

EXERCISE 1

Examine the complete A5 page shown in Example 35. Note down what you think is good and attractive about the layout of the page as a whole and note down unsatisfactory or unattractive features. Try to make two or three points in each case.

(10 minutes)

Comment

The page is designed to help the poor reader. Only a small amount of text is on the page, and the lines are short, with sentences broken into phrases. The picture is well placed. On the other hand, the picture is quite small and there is no room for a picture to illustrate the second topic, land. Otherwise, I can find little to criticise in the layout.

4. Arranging features on a page

Good course units are a kaleidoscope of exercises, illustrations, short sections and so on. You will need to take care that the final text looks clear and well-organised. It could look a jumbled mess.

Each unit will follow a regular pattern, with an agreed format and style. Unit 12 of this manual contains guidance on developing and working to an agreed style. The text will, however, also contain a number of occasional features, and you will need to know how to deal with these.

4.1 Placing pictures

Every time a picture is included, you must decide:

- * How much space does it need? Often you can decide that all pictures will be in two or three standard sizes, such as quarter page, half page, full page.
- * Where should it be? A picture should always be next to the text that refers to it. When the pages are finally prepared, space should be left for the picture on the appropriate page.
- * How should it be arranged? Does the picture come above the text it refers to, or below it, or beside it? Sometimes you will want students to read before they look, sometimes the reverse.
- * What caption and labelling should the picture have? Often pictures need numbers as well as titles.

You will need to give clear instructions to the production department on the placing of pictures. Here is an example of how you might do it, including instructions to the artist.

PICTURE 1 here.
Drawing of a cart drawn by 2 oxen.
The cart is going along a road.
A farmer walks beside it.
The cart contains a large sack.
The picture is to be 10 cm high.
Caption (beneath the picture):
'The Ox Cart is useful for carrying many things'.

4.2 Arranging different sections

When the typist starts typing the units, sooner or later the following will happen:

- * a heading will occur at the bottom of a page;
- * a new section will start at the bottom of a page;
- * an exercise will be split, with one bit on one page, and another on the next;
- * a table will not fit on one page.

You cannot avoid this happening, and you cannot predict all the cases where this could occur, and deal with them in advance. You can, however, reduce the number of pages that will need retyping or reorganising.

- * You can advise typists to start a new page, if a new section or exercise occurs within 10 lines of the bottom of the page (or any number of lines you choose).
- * You can ask typists to consult you immediately if these problems occur.
- * You can deal with tables by reducing them photographically so that they fit on a standard page.

In other words, you will need to take an interest in the typist's work. Although many course typists develop an excellent eye for layout, they cannot be expected to make decisions alone, and will need guidance from the editor. It helps considerably if the typist feels that the editor is an interested colleague, whose office door is always open.

4.3 Introducing design features


You will often want to make sections of the text stand out in some way by using small signs or by drawing frames. These features are not typed, but have to be drawn or stuck on the page. This means:

- * You have to decide where they will be used.

It is normal to use such features regularly. If you decide to place a sign by exercises, the sign should appear by every exercise. If you decide to draw a frame round a summary, there should be a frame round every summary. In this manual, contents lists, examples and exercises are framed.


- * You have to decide where they will be placed.

Sometimes a sign appears in the margin, as in Example 34. Sometimes it may be in place of text, as in Example 38. In this example, a pencil sign is used to indicate writing, and a tick to indicate checking the answers.



Exercise 8
Read again the conversation Watering the Vegetables.
Some of the sentences below are right. Put a ✓ in the box next to the right ones. Put a X in the box next to the wrong ones.

1. You should use a watering can.
2. Vegetables need a lot of water.
3. A rose is something you can put on a watering can to make the water come out quickly.
4. You should throw water from a bucket onto the vegetables.
5. You can get water from the river.
6. Plants like to be watered when the sun is hot.
7. Disho likes to water the vegetables slowly.

 Look at the answers. How many did you get right?
Write here: _____
5, 6 or 7 is very good. For more wrong, do the exercise again.

When you want to tell people to do something important you can say:

EXAMPLE 38: From 'English Course', Namibian Extension Unit, Lusaka, Zambia, 1981, Workbook 6, p.30

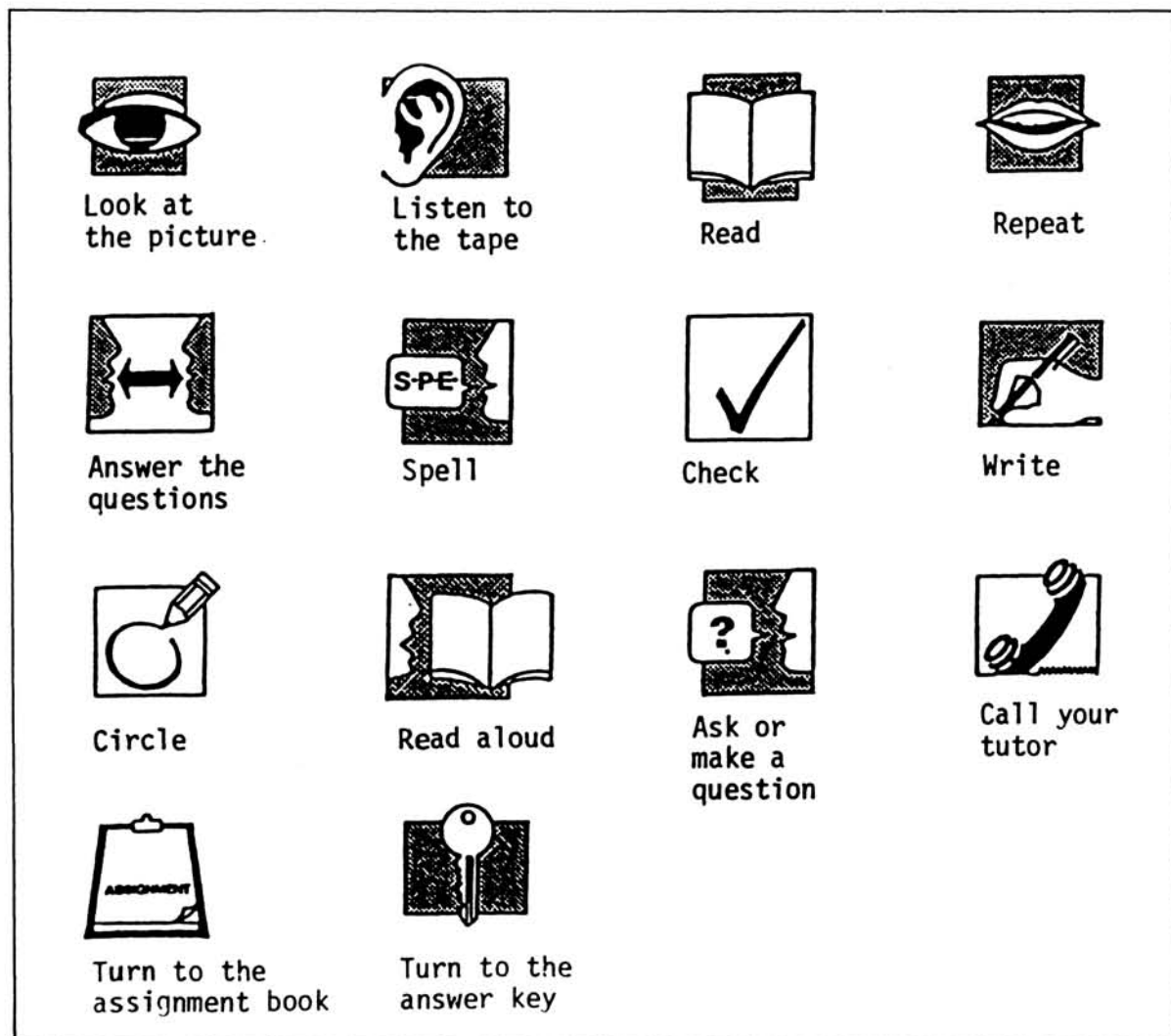
* You have to give instructions to the typist and designer. If the typist must allow space for a sign or a frame, you must write an instruction on the manuscript every time the feature occurs. Make sure also that the designer knows exactly where each feature goes.

Example 39 is included to show an imaginative use of signs. It is from a course to teach English to immigrants in Canada. All instructions in the course are covered by these signs. At the beginning of the course, each student receives a key to the signs, like the one reproduced here, in his own language.

4.4 Planning the cover

Each text will need a cover, and this is usually prepared by a designer. You will need to brief him on the kind of cover you want.

* Do you want a standard cover for all courses, or do you want a different one for each course? A standard cover can become like an



EXAMPLE 39: From 'English as a Second Language Course', Open Learning Institute, Richmond, Canada, 1983.

institutional trademark, so texts are easily recognisable. An individually designed cover can be attractive. You can combine both, with a standard layout for covers, with a varying illustration in one part.

When you need a cover illustration, collect ideas from the course writer, brief the designer, and let him produce two or three sample designs. You can then choose the most suitable.

* What kind of information should go on the cover?

You will want to include:

- The name of the institution
- The title of the course
- The title or number of the unit or volume
- The course reference code or number

All these features should be in large print and stand out clearly. You may also wish to include other information, like the course author's name.

If the cover has a spine, print the title and code on the spine as well.

This is useful for reference when the book is on a shelf.

* Try to make the cover distinctive. If you offer many courses, this will help your despatch department. You can, for example, code courses and volumes by colour. The despatch department will soon learn, for example, that maths has a red cover.

* Choose a functional type of cover. The cover needs to be sturdy. If you have any choice, choose stiff card that will not tear easily. Avoid pale covers that get dirty in storage or when they are handled a lot. Some colours, like red, fade quickly. Shiny, laminated covers are more expensive than dull card, but stay clean longer. Many students will value their course materials highly and will be disappointed if they receive a book which gets shabby and tears easily.

* Consider low-cost options. You can have a standard cover printed in large quantities. For each different course, the title and lesson number is printed or stamped on.

You can have a plain cover with no printing on it, but a hole in the card. The course and lesson title is printed on the first page, and shows through the hole.

In both these cases, you can provide a cheap variation by using different coloured card for the covers. Using black ink on coloured card or paper is a cheaper way to get a colour range than using one or two coloured inks.

5. Some criteria for decision-making

The points below may help you to decide whether to adopt an idea mentioned above, and which ideas will suit your circumstances.

5.1 The distant student needs a clearly organised text.

The use of signs or other distinguishing marks will help the students understand what they are expected to do at each stage. Signs can provide useful markers for changes, especially if a unit is rather long. Some students use signs actively, to help them organise their study and select material. They look ahead at exercises, using signs to pick them out, and plan their studies according to what they are expected to do. They leave out or skim through certain kinds of work, and concentrate more on others.

5.2 Research on reading provides guidelines on layout

* The most readable length of line is about 60 letters (10 to 12 words).

* It does not matter if the right-hand edge is justified (straight, like this book) or not. There is no evidence that justified text is any easier to read (but see remarks on Example 33).

* An average size type is quite readable. A typewriter may be:

10 letters to one inch (10 pitch)

or

12 letters to one inch (12 pitch)

On a composer type sizes are measured in points. You can use:

10 point, like this

11 point, like this

12 point, like this

These are all good, readable sizes. Do not use very small type.

* Most typefaces are easy to read. You can use:

A sans-serif typeface: this one is Univers 10 point.

or

A serif typeface: this one is 10 point Press Roman.

(You can see the second typeface has little tails called 'serifs' on the letters.)

Do not mix two typefaces in the same book.

* You can use different type styles for emphasis

This typeface is medium

This typeface is bold

This typeface is italic

Do not have long passages typed in bold or italic. Italic is rather difficult to read.

* You can distinguish between paragraphs by leaving a line, as in this manual, or by starting the first word of a paragraph a little way in, as in Example 34. This is called indenting. You do not need a space and an indent.

5.3 Texts for poor readers need special attention

* Use large print rather than small. If you like, you can use:

13 point, like this

14 point, like this

15 point, like this

* Use unjustified text. Spaces between words and letters will be even. This makes words easier to identify for poor readers.

* Arrange text in short, distinct chunks, as in Examples 35 and 36. For very new readers, do not let paragraphs spread from one page to the next.

You will often have to plan texts for new readers page by page. For more advanced texts, you need not pay so much attention to detail.

5.4 Make sure the text looks interesting

Learning theory and common sense tells us that the initial step in

teaching is to catch the learner's attention. A text that looks lively and varied is better than a text that looks dull.

5.4 Spaces for answers

Leave space for students to write answers in the book, if you can. (If books must be re-used, you cannot do this.) A space for writing will encourage students to complete the exercises. With no space, they may not bother. Doing the exercises is, as you know, an important part of learning.

EXERCISE 2

Look at Example 40. What is wrong with it? Suggest how to improve it.

(5 minutes)

Comment

I have five main criticisms of this page.

- a. Some lines go straight across. This is far too long for comfortable reading.
- b. The material on the top half of the page is placed in a higgledy piggedly manner, with no apparent reason.
- c. The mixture of long lines and short lines is confusing.
- d. The mixture of italic, bold and medium point is probably meant to add emphasis but adds to the confusion.
- e. The complete page is overcrowded and unattractive.

You may disagree. On the good side, the page appears to have unity as a whole. The first half provides examples, the second an exercise. The heading is clear, as are the numbering of the exercises and the directions to find the answers. The diagrams are neat.

6. Making the best use of facilities

This section gives a few notes on the potential and limits of the facilities you may have for production and printing.

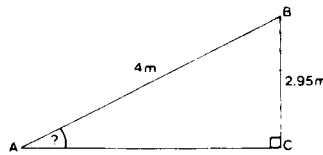
6.1 Typing

You are most likely to have one of the following kinds of facilities.

D Finding unknown angles

Imagine that you *know the lengths of 2 sides* in a right-angled triangle and you want to *find an angle*, like this:

We use one of the formulas on page 117, choosing the one which connects the *sides we know* with the *angle we want to find*.



Here are 2 examples:

To find angle A

We start with

$$\frac{\text{opp}}{\text{hyp}} = \text{sine } A$$

$$BC = AB \times \text{sine } A$$

formula connecting sides we know with angle we want to find

$$\text{So } 2.95 = 4 \times \text{sine } A$$

÷ both sides by 4

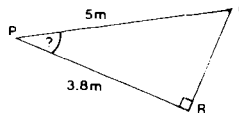
$$\frac{\text{opp}}{\text{hyp}} = \frac{2.95}{4} = \text{sine } A$$

$$\text{So sine } A = 0.7375 \quad 4 \sqrt{2.9500}$$

and, looking up the matching angle in sine tables,

$$A = 47^\circ 31'$$

To find angle P



We know the *hypotenuse* and *adjacent*, so we use *cosine*.

$$\frac{\text{adj}}{\text{hyp}} = \text{cosine } P$$

$$PR = PQ \text{ cosine } P$$

$$\text{So } 3.8 = 5 \times \text{cosine } P$$

÷ 5

$$\frac{\text{adj}}{\text{hyp}} = \frac{3.8}{5} = \text{cosine } P \quad 5 \sqrt{3.8000}$$

$$\text{So cosine } P = 0.7600$$

$$\text{So } P = 40^\circ 32'$$

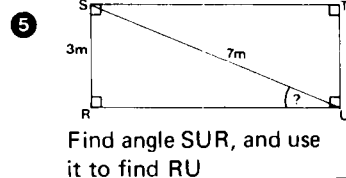
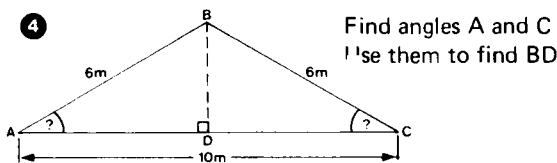
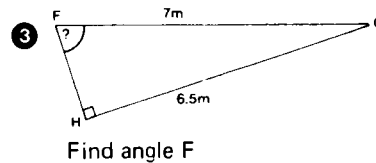
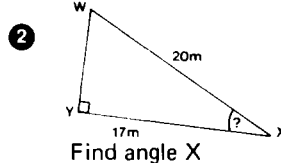
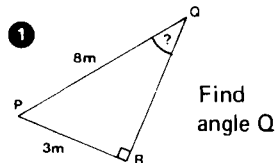
You will see from the examples above that we can rewrite our formulas to find angles when we know the sides, like this:

$$\frac{\text{opp}}{\text{hyp}} = \text{sine (angle)}$$

$$\frac{\text{adj}}{\text{hyp}} = \text{cosine (angle)}$$

We change the fractions to decimals by dividing, and use tables to find the angles.

Now you try:



Answers on page 123

Answers

Page 119

1 $AB = 4 \times \text{sine } 40^\circ = 4 \times 0.643 = 2.572\text{m} \approx 2.57\text{m}$

2 $UV = 10 \text{ sine } 20^\circ = 3.42\text{m}$ 3 $KL = 40 \text{ sine } 70^\circ = 37.6\text{m}$

4 $EG = EH + HG = 17 \text{ cosine } 30^\circ + 20 \text{ cosine } 25^\circ = 14.722 + 18.120 = 32.842\text{m} \approx 32.8\text{m}$

5 $QR = QT - RT = 5.144 - 4 = 1.144\text{m} \approx 1.14\text{m}$

6 $AB = FC$, but $FC = FE + ED + DC$, so $AB = FE + ED + DC = 7.66 + 20 + 7.66 = 35.32\text{m} \approx 35.3\text{m}$

a. Traditional manual or electric typewriter. You cannot vary the typeface. The typewriter is usually 10 or 12 pitch. This means 10 or 12 letters to an inch. Example 36 is typed on a 10 pitch typewriter.

b. Golf-ball typewriter. This has interchangeable heads, so that you can change from one typeface or type style to another. For example, you can use italics when needed. You can also buy golf-balls with mathematical symbols or other features which are not available on the normal keyboard. Some typewriters or printers use devices called daisy wheels instead of golf-balls.

c. Word processor. This is a keyboard, a computer and a printer connected together. The keyboard is like that of an ordinary typewriter, except that some of the keys control the computer program. You can use the program to arrange the text as you want. Each program will only provide a limited range of possibilities, but these are sufficient for most requirements. You can see what you have keyed in on a visual display unit, and correct it before it is printed. The typed material is stored on a disk. When you want to print a copy, you connect the disk drive to the printer and print your pages. You need a printer from the more expensive range to give you a choice of typefaces and to give you sufficiently high quality copies to print from. The cheaper dot-matrix printers are not good enough. This manual has been prepared on a word processor.

A word processor reduces the drudgery of editing, checking and retyping. You must take advice, however, before you buy a word processor for a hot country or for conditions where the electric current may vary.

d. Typesetting machine or composer. These are machines used by professional printers and can range from fairly simple to very sophisticated. The machines are like an electric typewriter to use, but have features which enable them to produce fine results, resembling the old metal type. You can produce versatile and professional results, but the capital outlay may be more than you wish. Examples 32 and 34 are good examples of typeset material.

6.2 Printing

Most people will use stencil duplicating or offset lithography.

a. Stencil duplicating. A stencil is a paper covered with small holes through which ink must penetrate in order to print. You can imagine from this that a stencil is likely to wear out. If you are careful, you can print several hundred copies from a stencil, and you can even store a stencil and re-use it. But after a while, copies get blurred. You need fairly absorbent paper for stencil printing, and that also can lead to a blurred effect.

All the same, stencils are cheap and an excellent method of printing for a small institution or small batches of materials. The one major disadvantage is that it is difficult to produce good illustrations on a stencil. If you use stencils, and wish to use illustrations widely, you could consider getting an electronic stencil-maker. This converts lines drawn on a page into a stencil. Thus a good illustration can be made into a stencil with no trouble.

b. Offset lithography. This is printing which involves a photographic process. To prepare a text for printing is very simple. You type the material on good paper using a special black ribbon on the typewriter.

Illustrations and other features are then pasted on to the pages. Any mistakes or alterations are typed on slips of paper and pasted on. Dirty marks or unwanted bits can be whitened out or a clean piece of paper is stuck over. Then the page is photographed on to a plate and printed. If you want to use photographs, or if you want a large number of copies, you will require more expensive plates. Most plates can be stored for re-use.

EXERCISE 3

This is a practical exercise. First, arrange a discussion with your course typists. Look at the equipment that is being used, and ask for a demonstration of what it can do. Then, do the same thing with your print department. If you use an outside printer, try to visit and see what kinds of work they can do.

(1 hour)

Summary

You should now be able to choose a suitable page size and layout for your course material. The choice of format should take into consideration the students' needs, the guidelines offered by typographical research, and the potential and constraints of your production and printing facilities.

ASSIGNMENT J

Examine some course material from your institution. In the light of what you have learnt in this unit, can you make any suggestions for a revised format for future courses? Work out some proposals, using the existing unit as a model for amendment. Please complete Exercise 3 before finalising your proposals, so that you are sure they are realistic and practical.