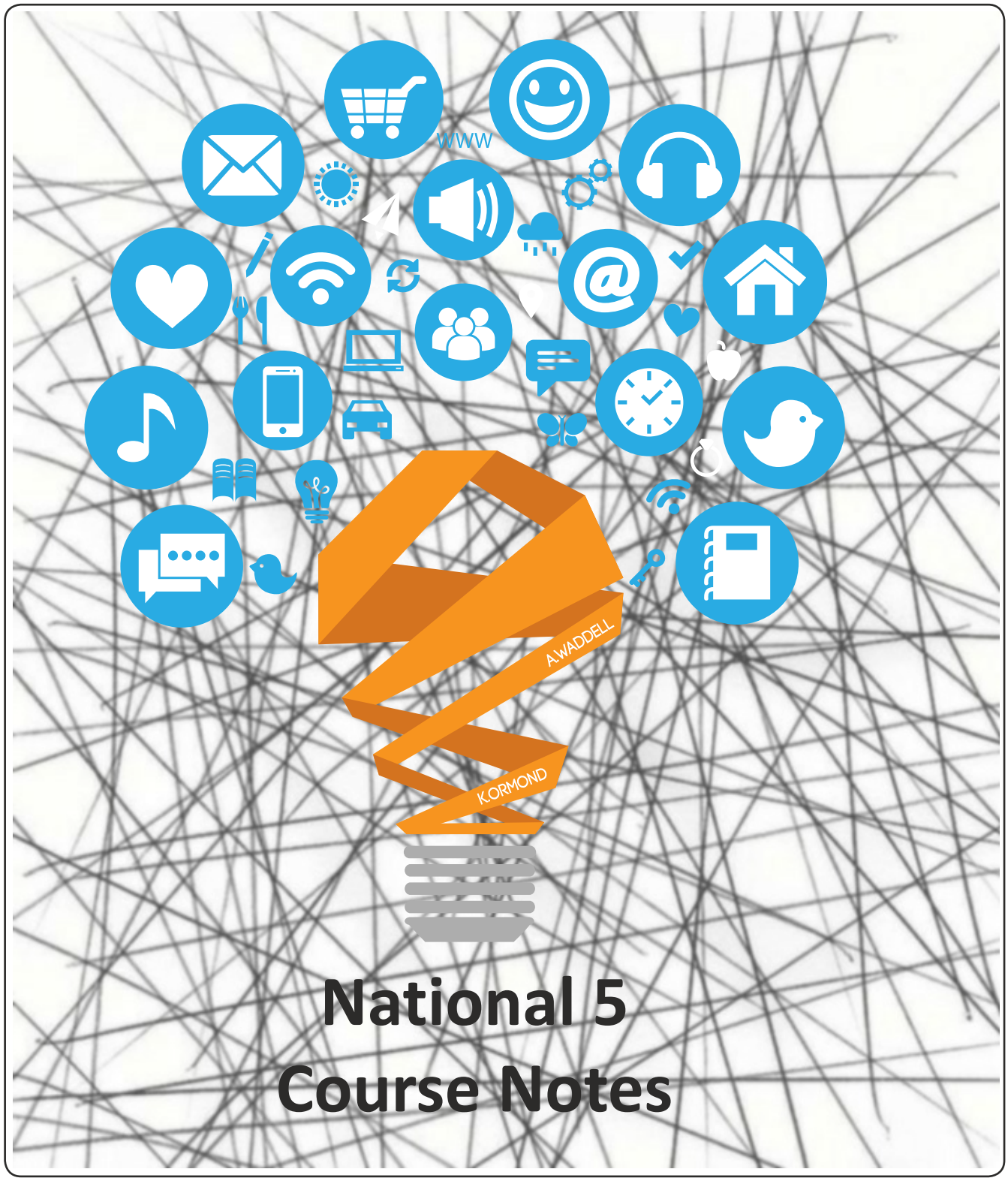
Graphic Communication



National 5 Course Notes

These are your National 5 Graphic Communication course notes. You should refer to these notes when completing coursework and homework tasks.
You must keep this booklet safe as it will form a useful revision reference for your National 5 exam.

Contents

Introduction

The National 5 course consists of:-

Final exam - written question paper	**67%**
Final Assignment - assessment task	**33%**

The examination paper is **2 hours** long and consists of one part:-
Graphics knowledge *(Content of this booklet)*

The Question Paper consists of a total of **80** marks.
The Final Assignment consists of **40** marks

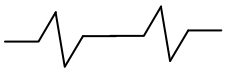
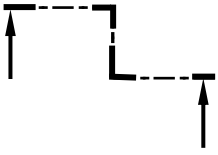
The following information contained within this booklet contains all the information required to fulfil this aspect of the course. It is therefore imperative that you fully understand the information contained within this booklet.

Exam

Your National 5 exam is worth 67% of your final grade. The question paper has one section and follows the structure outlined below:

Topic Area	Range of marks
Computer-aided design techniques	15–20
Graphic items in specific situations	8–10
Manual and electronic methods of graphic communication	6–14
Spatial awareness	12–17
Drawing standards, protocols and conventions	10–17
Use of colours, layout and presentation techniques	15–20

Linetypes

	Continuous thick	Used for visible edges and outlines
	Continuous thin	Used for projection, dimensioning, leader lines, hatching and short centre lines
	Continuous thin straight with zigzags	Used for limits of partial or interrupted views and sections if the limit is not an axis
	Dashed thin line	Used for hidden outlines
	Chain thin	Used for centre lines
	Chain thin double dash	Used for fold lines
	Continuous thin irregular	Used as the limit to an interrupted view when an axis is not present
	Chain thin thick at both ends and	Used on Cutting planes

Dimensioning

Dimensioning is the process of applying measurements to a technical drawing. It is crucial to the whole process by which the designer will communicate the information required for the manufacture of products.

General principles

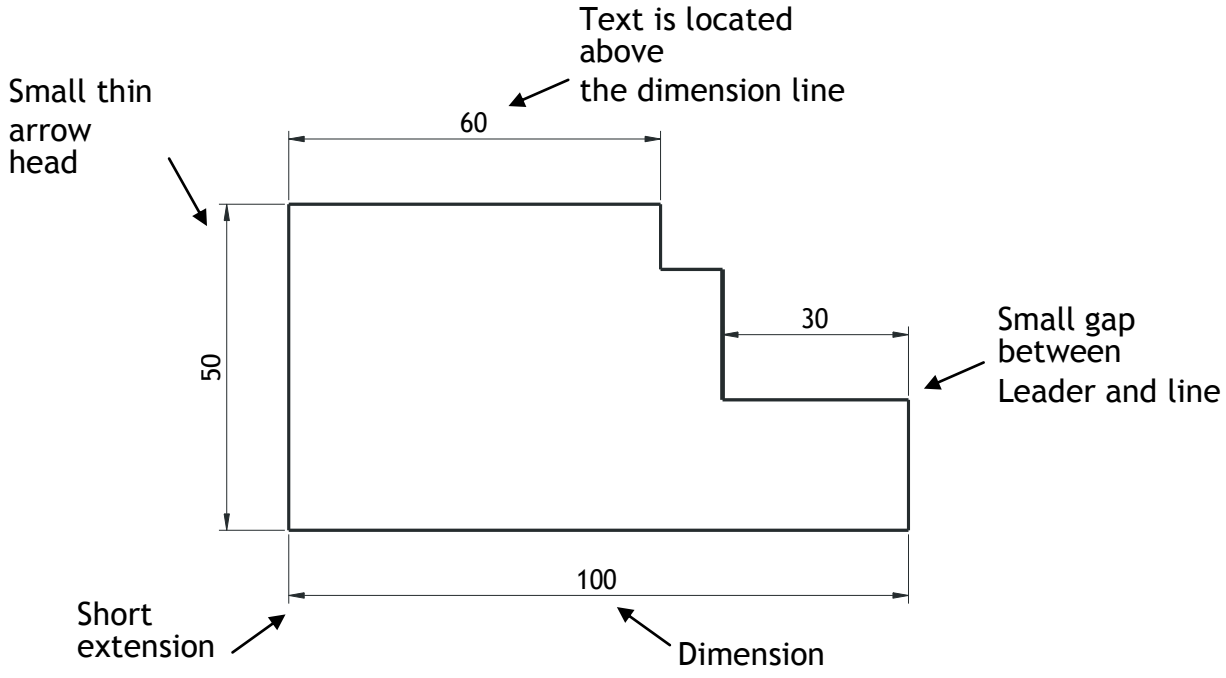
Dimensions should be applied to the drawing accurately. The following points highlight the general dimensioning principles that should be applied to all technical drawings:

- Each dimension necessary for the definition of the finished product should be shown once
- Never calculate a dimension from the other dimensions shown on the drawing, nor scale the drawing
- There should be no more dimensions than are necessary to completely define the product
- Linear dimensions shall be expressed in millimetres

Arrangement of dimensions

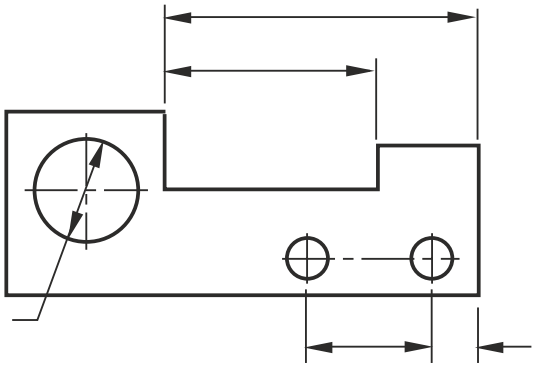
Conventions for arranging dimensions on drawings are as follows:

- Dimensions shall be placed in the middle of the dimension line above and clear of it
- Dimensions should not be crossed or separated by other lines on the drawing
- Values of angular dimensions shall be oriented so that they can be read from the bottom or the right-hand side of the drawing
- Where space is limited, the dimension can be placed centrally, above, or in line with, the extension of one of the dimension lines
- Larger dimensions shall be placed outside smaller dimensions

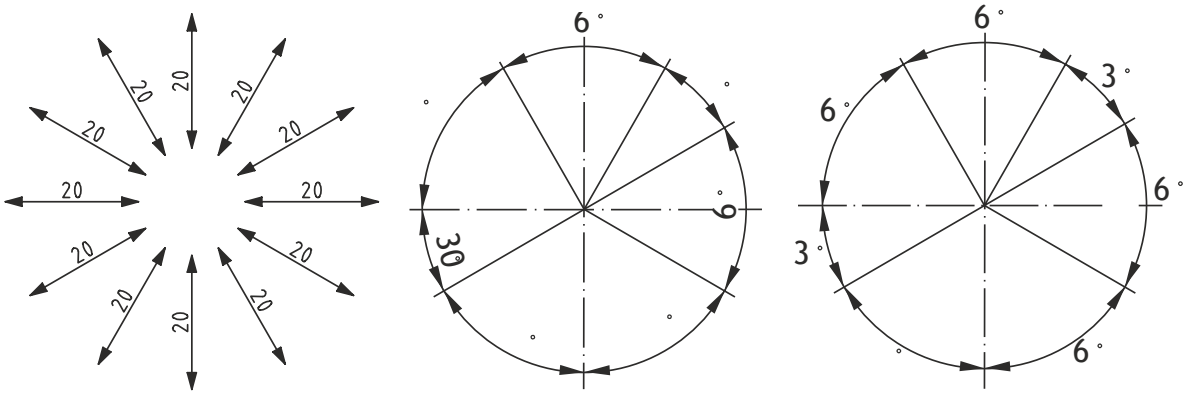


Example of British Standard dimensioning

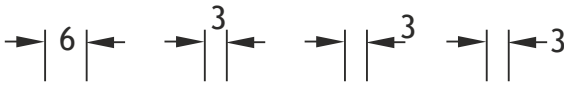
Dimensions of diameters should be placed on the view that provides the greatest clarity.



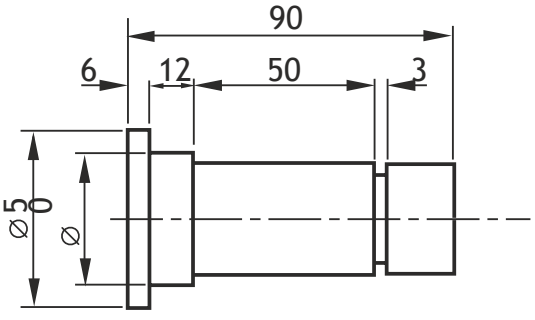
Examples of the ways in which dimensions are typically used on drawings



Orientation of linear and angular dimensions



Dimensioning smaller features

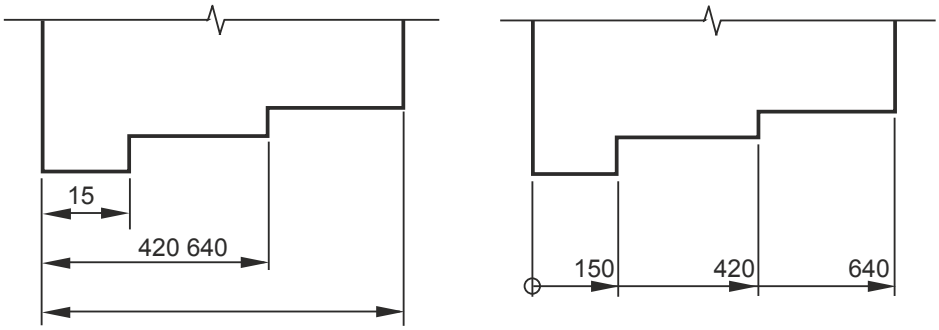


Larger dimensions placed outside smaller dimensions

Dimensioning Types

Parallel Dimensioning

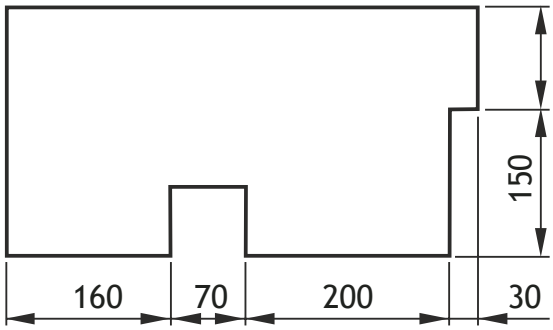
Dimensioning from a common feature may be executed as parallel dimensioning or as running dimensioning. Parallel dimensioning is the placement of a number of single dimension lines parallel to one another and spaced out so that the dimensional value can easily be added in.



Parallel dimensioning

Chain Dimensioning

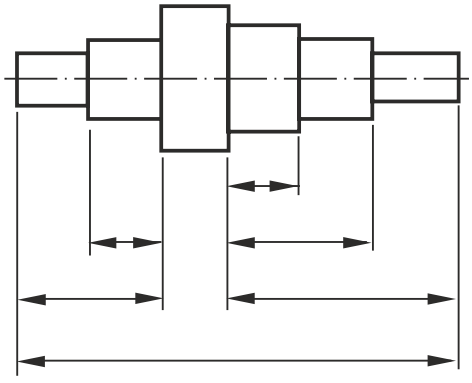
Chain dimensioning consists of a chain of dimensions.



Chain dimensioning

Combined

Combined dimensioning uses chain dimensioning and parallel dimensioning on the same drawing view.

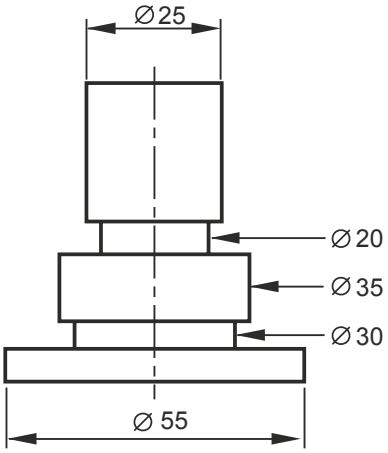


Combined dimensioning

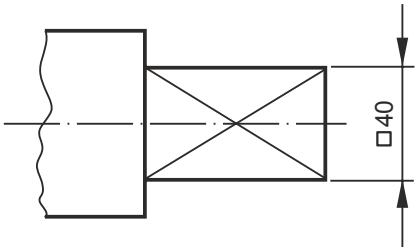
© AW15

Methods for dimensioning common features

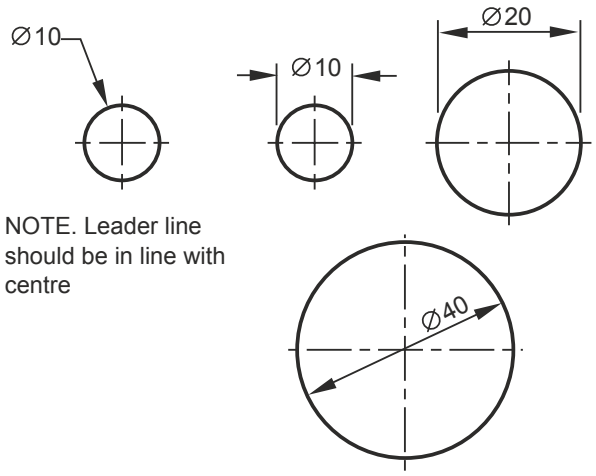
Certain features, such as diameters, radii, squares, hole sizes, chamfers, countersinks and counter-bores, can occur frequently in engineering drawings. The conventions below show how to dimension such features.



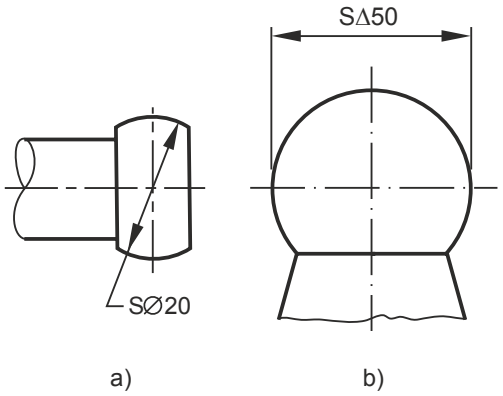
Diameter dimensions indicated by leader lines



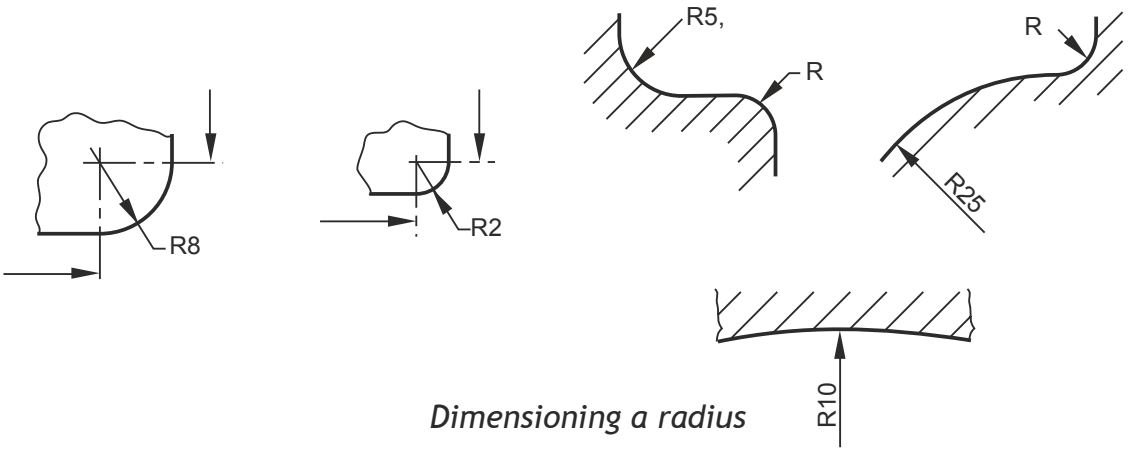
Dimensioning a square



Dimensioning a diameter



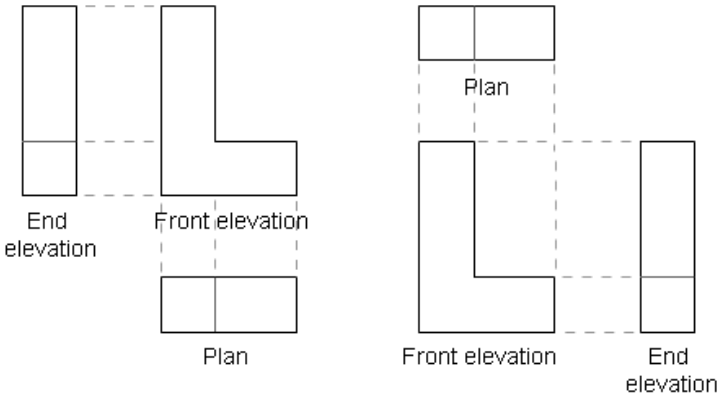
Dimensioning spherical diameters



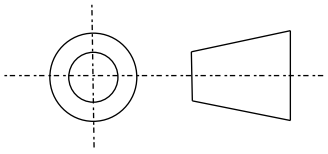
Dimensioning a radius

Third Angle Projection

Orthographic Projection is a way of drawing an object from different directions. There are two ways of drawing in orthographic - First Angle and Third Angle. They differ only in the position of the plan, front and side views:



FIRST ANGLE PROJECTION THIRD ANGLE

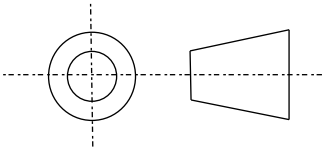


The use of the third angle projection symbol informs the reader of the drawing it has been carried out in this projection.

All engineering drawings should feature a title block with essential information about the

Title Blocks

All engineering drawings should feature a title block that provides essential information about a drawing. A title block should contain:

DRAWING:	
TITLE:	
PROJECT:	
SCALE: 1:2	

Title - title of the drawing
Name - name of the person who produced the drawing
Checked - before manufacture, drawings are usually checked
Date - the date the drawing was produced of last amended
Scale - the scale of the drawing
Company name - name of the company
Projection - the projection system used to create the drawing
Note - any additional notes relevant to the drawing

Scales

Scaling drawings allow us to draw exceptionally large objects such as houses on any size of paper available to us. To enable this to happen we have to scale every size (dimension) by the same factor. i.e. taking the example of the house, every dimension would have to be divided by say 100. By doing this we are scaling **DOWN** the size of the house. We can also draw exceptionally small objects larger, examples of which are, the minute electronic chips which are now part of our every day life. They are so small we could not draw them as they are we have to **SCALE UP** the drawing to be able to draw them.

1:1

When we carryout a drawing using the actual dimensions, this is called '**full size**', or the drawing has been drawn to a scale of **1:1.** For every 1mm drawn, 1mm is represented.

1:2

When we carryout a drawing and reduce all the sizes by a factor of 2, i.e. all dimensions are divided by 2, this is scaling down the drawing. This makes the drawing half its original size. What the 1 & 2 represent are, for every 1mm drawn on paper the actual size of the real object is 2mm.

2:1

We can also increase the size of an object by any factor. In the example shown opposite the sizes have been increased by a factor of 2. This will make the drawing twice its original size. The 2 is stating that for every 1mm actual size of the object, 2mm have been drawn. If we increased the object by **10** the scale would be **10:1.** If we reduced the objects dimensions by twenty the scale would be **1:20.**

We can also increase the size of an object by any factor. In the example shown opposite the sizes have been increased by a factor of 2. This will make the drawing twice its original size. The 2 is stating that for every 1mm actual size of the object, 2mm have been drawn. If we increased the object by **10** the scale would be **10:1.** If we reduced the objects dimensions by twenty the scale would be **1:20. W**ith respect to Engineering drawings, there are recommended scales for reduction and enlargement. These are as follows:-

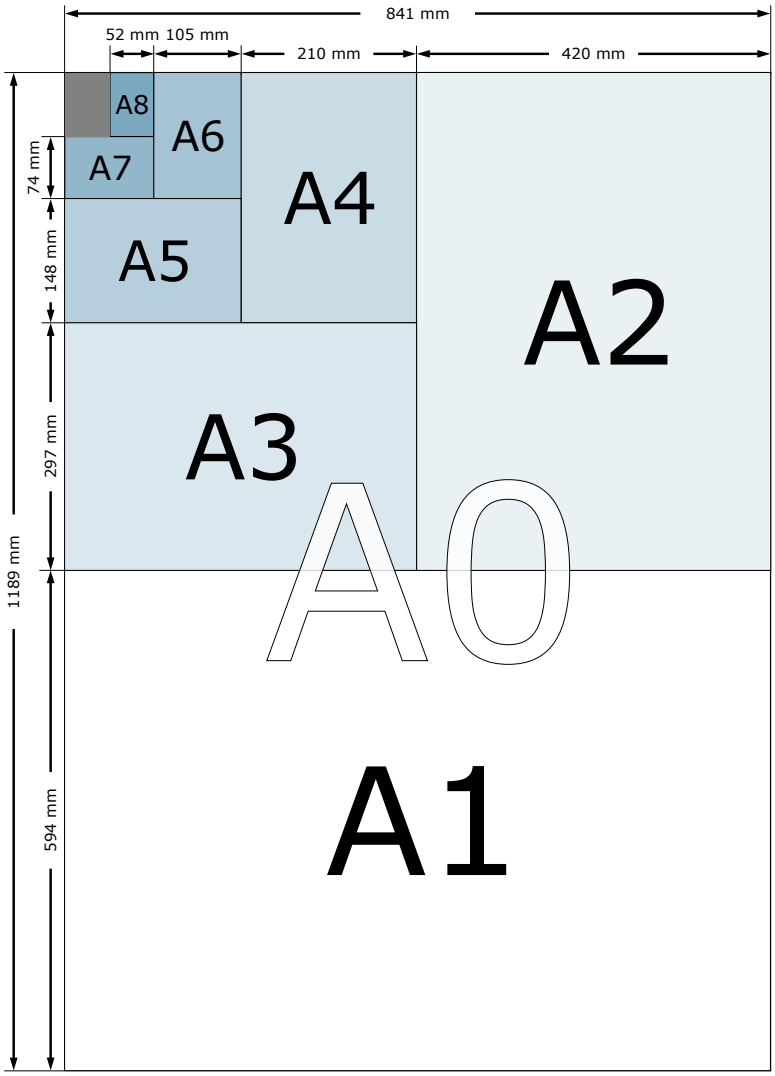
Reduction:- 1:2, 1:5, 1:10, 1:20, 1:50, 1:100, 1:500, and 1:1000

Enlargement:- 2:1, 5:1, 10:1, 20:1, and 50:1.

The size of scale used is mainly dependant on two factors. These factors are the;

- **Size of paper available**
-
- **Size of the object being drawn**
-
- **The amount of detail required**

E.g. If house was being drawn on a piece of A4 paper opposed to a sheet of A2 paper, the scale used will obviously have to be different or it won't fit onto the page.



Standard paper sizes used in industry

Construction Drawings

Scale

Scales are used a great deal in building drawings. They are used in three main areas, Floor plans, Site plans and Location plans. Each of the three types of drawings have preferred scales. These are as follows:-

Type of Drawing	Floor Plans	Site Plans	Location Plans
Preferred Scales	1:50 or 1:100	1:200 or 1:500	1:1250 or 1:2500

Floor Plans

SCALE 1:50, 1:100

This type of drawing shows the layout of the rooms inside the building and the position of the doors, windows and important fittings like a bath, sink and toilet.

Site Plans

This type of drawing is concerned with one or more buildings which are within the same area and shows these buildings within their own site (or plot) boundary.

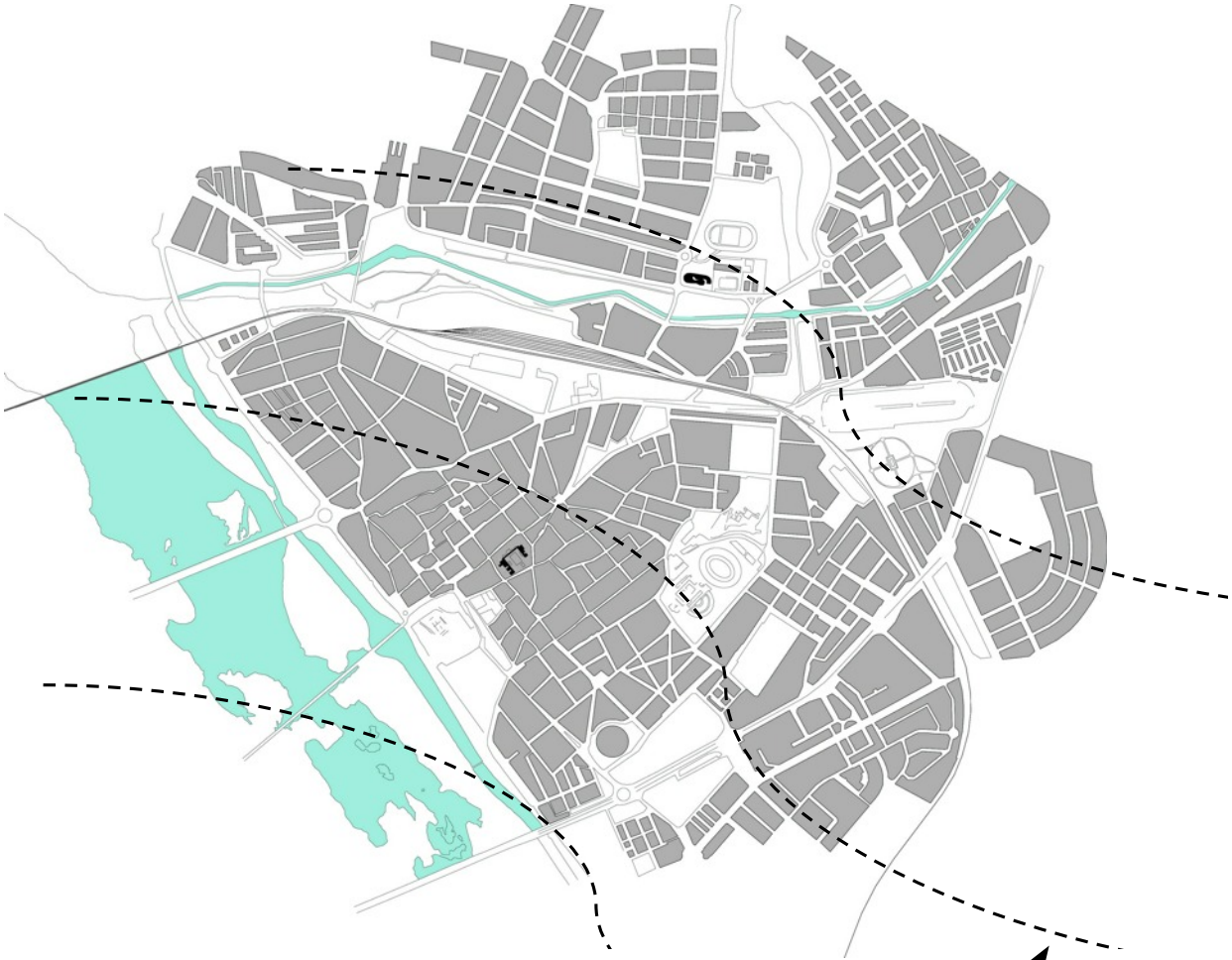
The buildings are shown as outlines and boundaries are marked slightly darker. The scale and the north point are both indicated on the drawing. The site is numbered (usually as plots). Waste pipe runs, manholes and trees are also indicated. Important dimensions are sometimes shown.

SCALE 1:200, 1:500

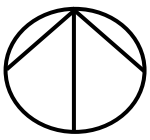
Location/Block Plans

A **Block Pl**an or **Site Location Drawing** shows where the site is located within the local area. It shows roads, outlines of buildings and site boundaries (Garden boundaries).

The location plan below shows where a building or plot of land is situated within it's surrounding area. It is normally drawn to a scale of 1:1250.



SCALE 1:1250



North Point
indicator and scale.

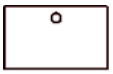
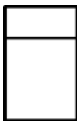
Ground contour lines

Construction Symbols

These symbols are drawn to BSI. You may be required to use them in your assignment or project, or be asked questions about them in your exam.

You **must** use the symbols and terms specified below.

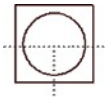
Lamp	Switch	Socket	Radiator
			

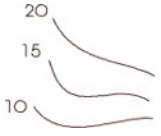
Shower tray	Bathtub	Wash basin	Sink	WC
				

Sinktop	Towel rail	Concrete	Brick work
			

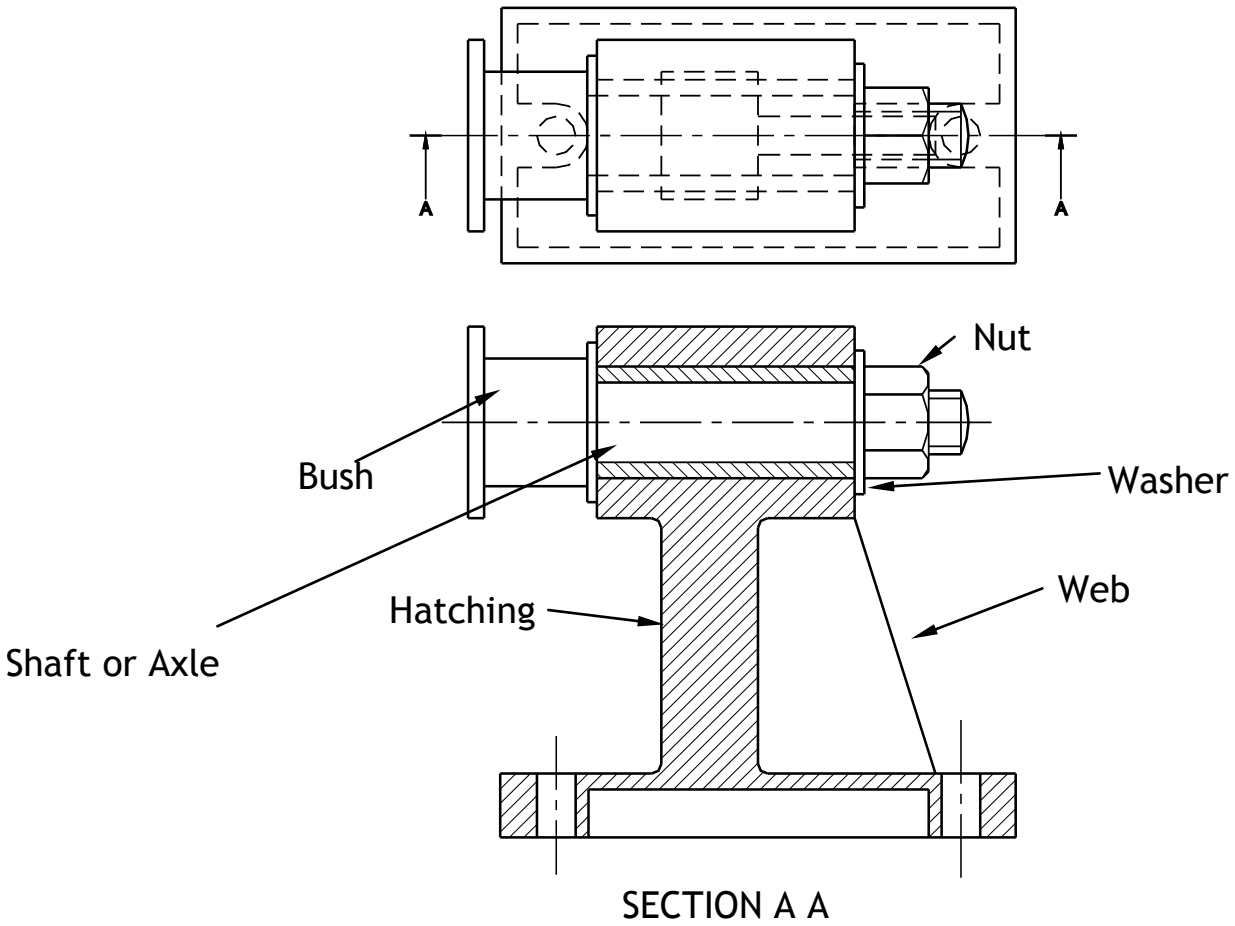
Door	Sawn timber	Insulated board	Block work
			

Fixed window	Window — hinged at side	Window — hinged at top	Window — hinged at bottom
			

Pivot-centre window	Window — sliding horizontally	Drainage	North sign
			

Existing tree	Existing tree — to be removed	Proposed tree	Contour
			

Sectional Views



SECTION A A

Sectional views are drawn to show more clearly what hidden parts would look like.

The cutting plane is shown as a chain dotted line thickened at the ends and labelled with a letter.

Where parts are cut by the cutting plane they are hatched using a thin line drawn at 45°. These lines should be equally spaced at 4mm. Adjacent parts are hatched in the opposite direction.

offset

Herring bone

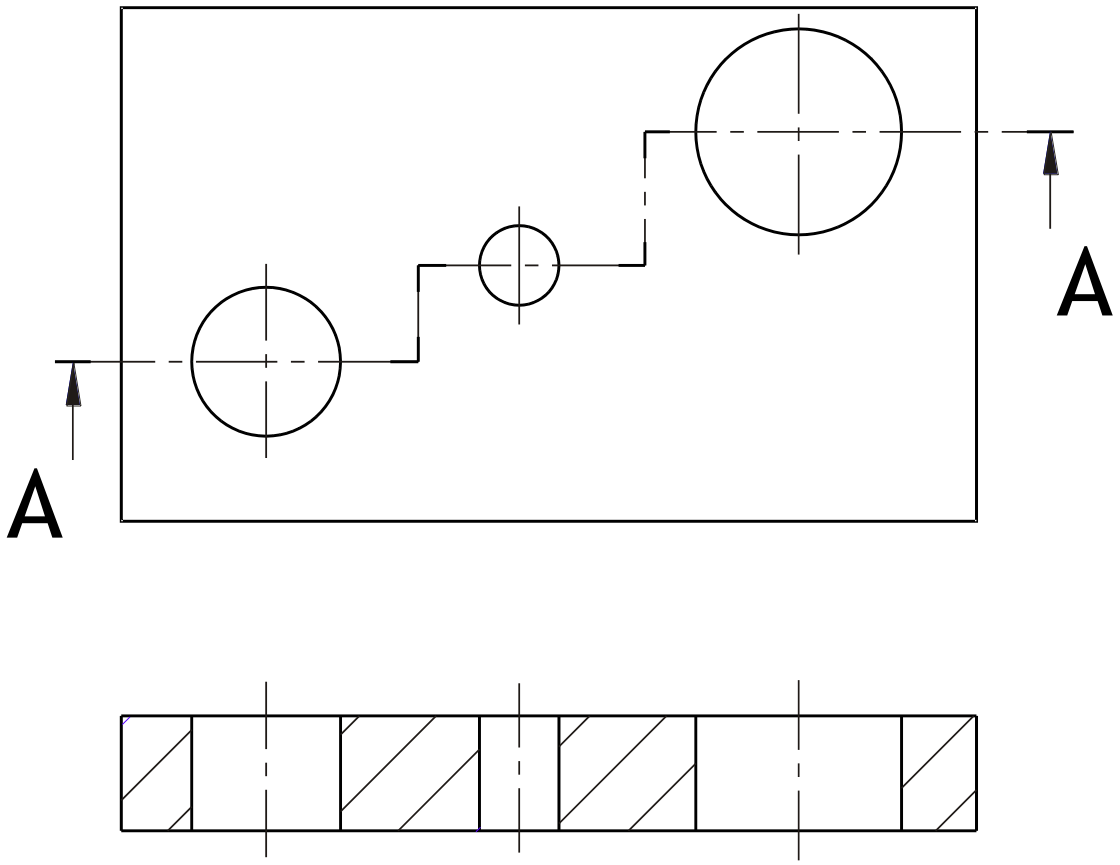
Offset hatching lines between parts **Do not** produce herring bone pattern. The following parts are **not** normally sectioned:-

Shafts, ribs, webs, spokes of wheels, nuts and bolts, washers and keys

Sectional Views

Stepped Sections

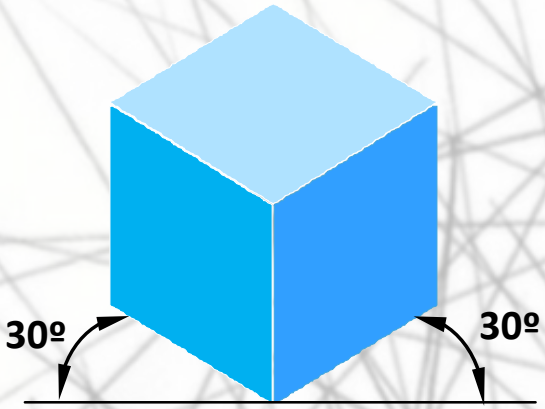
(Sectional views in more than one plane)



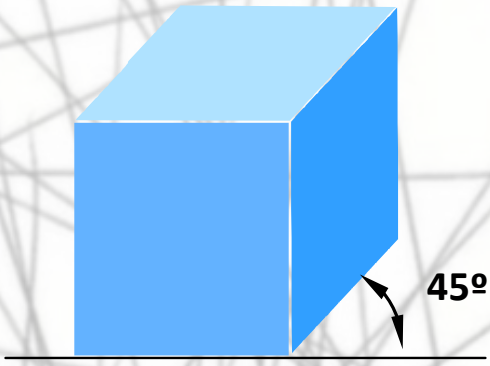
SECTION A- A

It is convention to draw these views as if the cutting planes were one continuous plane.

Pictorial Views

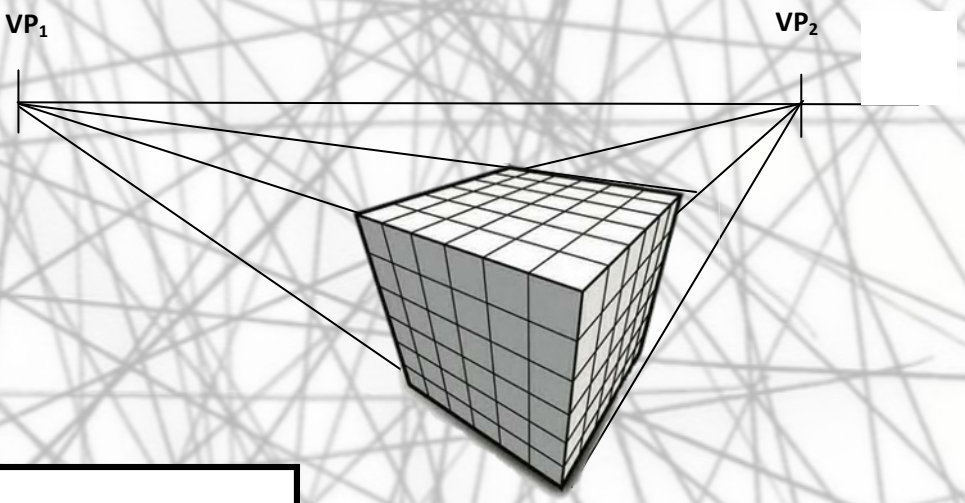


Isometric

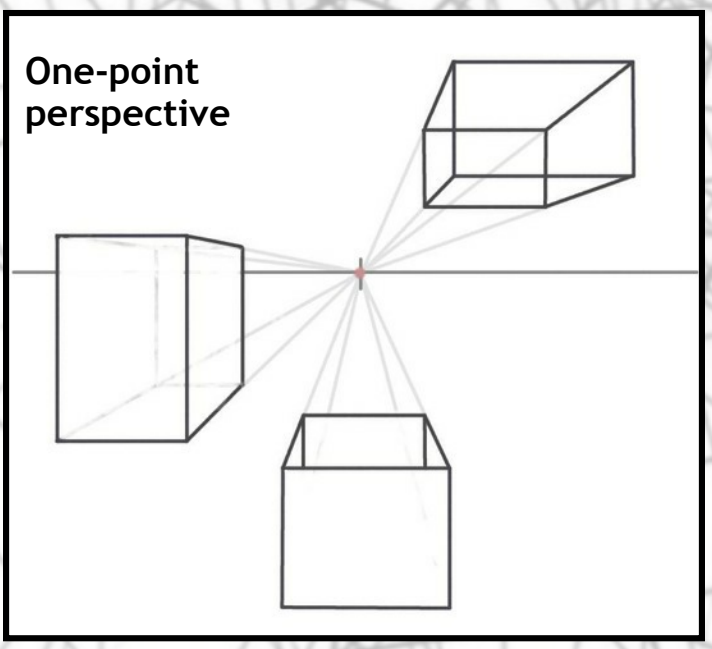


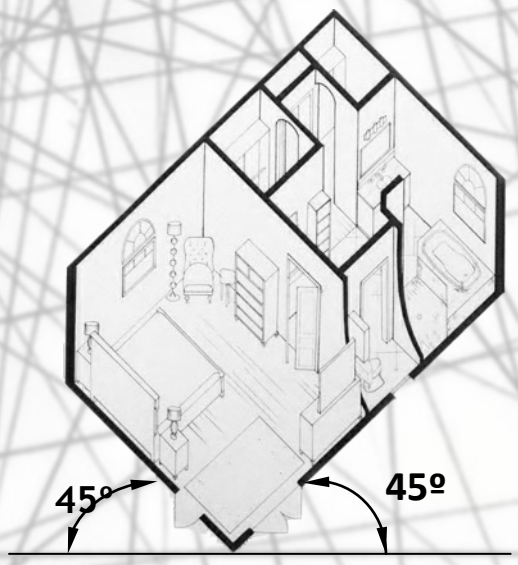
Oblique

Two-point perspective



One-point perspective





Planometric

Information Graphics

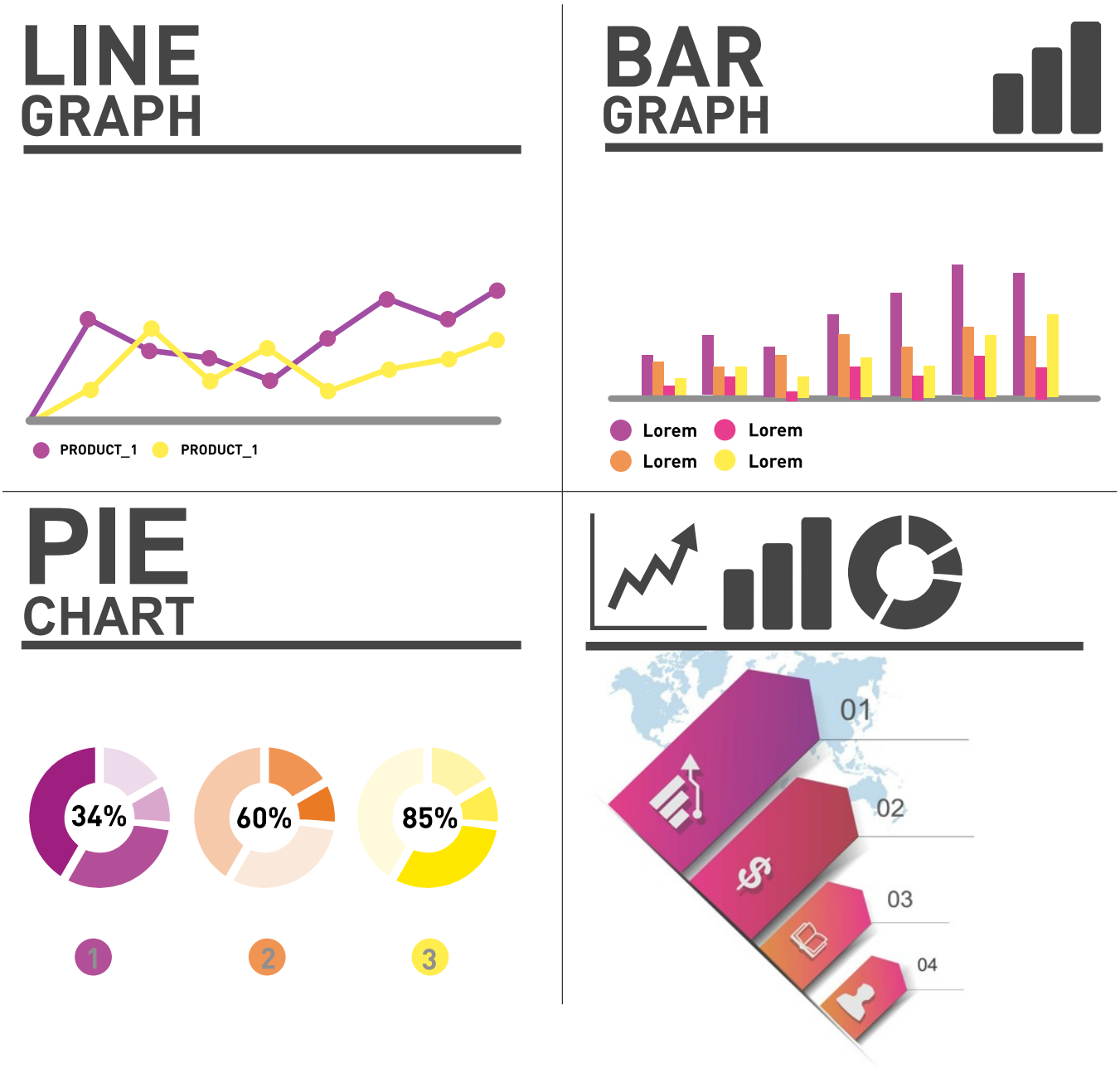
Information graphics or infographics form a major part of graphic communication and how information is displayed in society today.

Graphs and charts are one type of infographic that we are all familiar with. The challenge for the graphic designer is to convey the information in a way that best suits the reason for the chart/graph/infographic being created in the first place.

It is often very useful to show graphs and charts in order to give a visual representation of data. Graphs can be extremely useful for providing a quick glimpse into patterns, trends and future outcomes. Information can be easily analysed when data is plotted into a chart such as, pie charts or bar graphs.

It may be the case that the designer wants to draw attention to one piece of information, or the opposite, they want to hide information among lots of other data.

Some examples are given below:

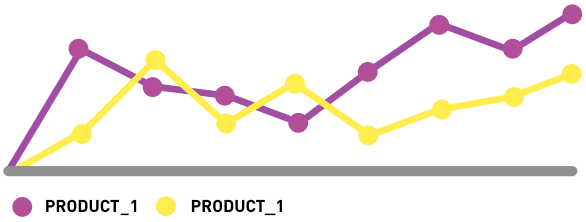


Picking the correct graph or chart.

The first and most basic rule is that different types of chart/graph have different uses. We must first ensure that we are using the correct type for the data we are presenting.

Line graph

One of the most common graphs you will encounter is a line graph. Line graphs simply use a line to connect the data points that you plot. They are most useful for showing how something changes over time- this is called a trend.



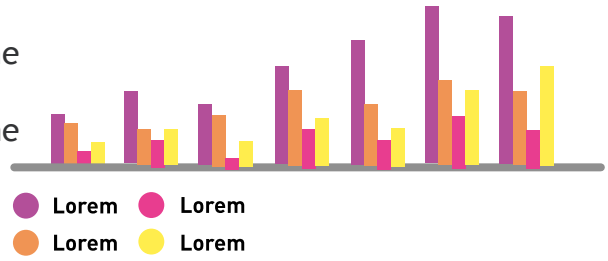
Top tip

Label both axes clearly, it should be obvious to the reader what is being explained in the graph.

You can only use line graphs when the variable plotted along the axis is continuous. For example, time, temperature or distance.

Bar graph

A bar graph usually shows us the actual quantity of the items in the graph. The height or length of each bar represents the value, size or amount being shown: The higher or longer or bar, the greater the value.



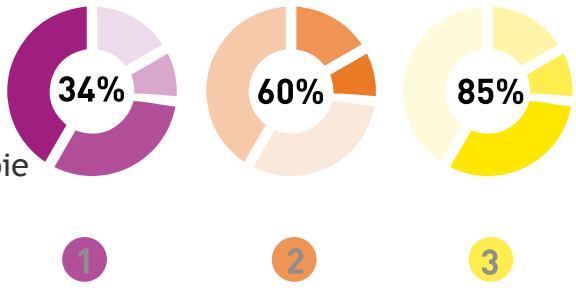
Top tip

Label both axes clearly, it should be obvious to the reader what is being explained in the graph.

Each bar should have a space between them to make it easier to read. This can also be achieved by using different colours.

Pie chart

A pie chart compares parts of a whole- it shows a percentage distribution. The entire chart shows represents the total data set and each segment of the pie is a particular category within the whole.



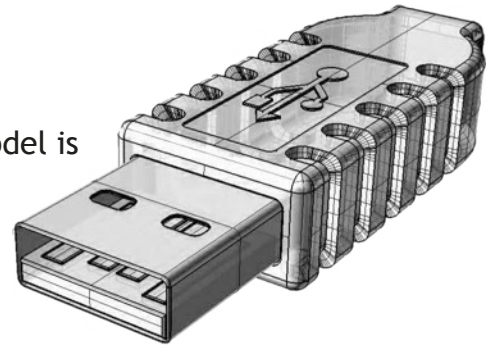
Top tip

Be careful not to use too many segments. More than six and it becomes too crowded and can be difficult to see smaller segments.

You can detach one of the segments to make it stand out.

3D Modelling

The development of 3D modelling software enables architects and design engineers to create realistic 3D models of their designs. Previously they would have been built from clay, card or polystyrene blocks. A 3D computer model is a virtual object which can be rotated on screen and viewed from any angle.

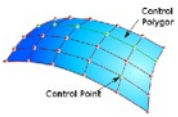


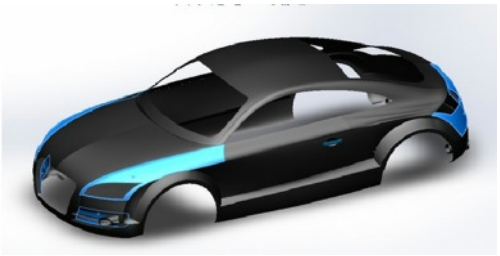
Wireframe Modelling

There are 3 different types of CAD modelling. A wireframe model is built up using a series of connected lines to produce a 3D object.

Surface modelling

The surface model is built up by drawing the surfaces of an object. Like adding the canvass onto the frame of a tent.





Solid modelling

The solid model is built up by using simple geometric forms or extrusions, such as: cuboids, cylinders & prisms. These can be added or subtracted to produce complex 3D models.

3D Modelling has several uses within industry, these include:

Testing & Simulation

Prototype 'models' of a design can be produced on the software and 'tested' via features in the program. This can be to simulate different areas of stress on the design or how it would react in various real-life situations.

Production & Promotional Drawings

2D CAD production drawings can be very quickly and accurately obtained from the 3D model. This can make it easier to produce these drawings than using manual methods or 2D CAD. Rendered CAD models can also be used for promotional graphics.

Manufacturing & 3D Printing

The 3D models can be exported as STL files to 3D printers and produced as physical prototypes. This allows basic models to be produced to provide a hand-held, tangible version of the design from the computer.

Advantages of CAG over manual drawing techniques.

- Drawings are produced quicker and very accurately.
- Drawings are easier to edit/change.
- Libraries of various parts can be created.
- Lead time can be reduced.
- Quality of drawings are improved.
- Convenience of use (Lap top).
- Standardisation.
- Drawings can be easily scaled up or down.
- Use of layers allows different parts to be drawn separately.
- Easier to store drawings.
- Easier to send drawings to another location quickly.
- True 3D modelling made easy.
- New designs from existing designs.

Disadvantages of CAD over manual drawing techniques.

- Overall cost of hardware.
- Overall cost of software.
- Continual need to upgrade systems to stay competitive.
- Risk of catching computer viruses.
- Staff training costs.
- System faults/crashes.

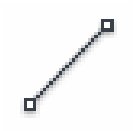
Key features

Library
This allows the user to insert previously drawn and saved parts into a new drawing. The advantage of this feature is that each part does not have to be redrawn each time it is required. The library feature allows parts to be saved for future use and multiple users can add to and access the library.

Layers
A CAD drawing is made up of individual ‘layers’, with each layer providing a different line type or ‘element’ of the drawing. This allows that layer to be isolated and edited/applied to the drawing. For example, within a large floor plan the electrical, plumbing pr heating systems can be displayed individually so allowing that information to be easily available to the individual required without the drawing becoming ‘cluttered’ with excess detail/

2D Drawing Tools

2D CAD is the electronic equivalent of traditional drawing and can be used to create a full range of production drawings. The 2D commands listed below are used within the sketch feature of Inventor prior to modelling in 3D. These are ones that you should become familiar with for your National 5 exam.



Line - creates a straight line

Circle - creates a circle

Arc - creates an arc through specified points

Rectangle - creates a rectangle

Rectangular array - repeats a graphic in a square pattern

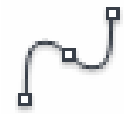
Circular array - repeats a graphic in a circle pattern

Mirror - makes a symmetrical copy of a graphic

Move - reposition a graphic on the page

Pan - move the viewpoint of an object without zooming out

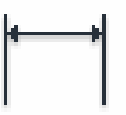
Scale - Increase or decrease the size of a graphical item



Spline - controls nodes on a line allowing you to make a series of smooth curves

Ellipse - creates an ellipse

Fillet - adds a curve or radius to a corner



Dimension - a tool for applying linear, radius and angular dimensions

Copy & paste - makes identical copies of graphics

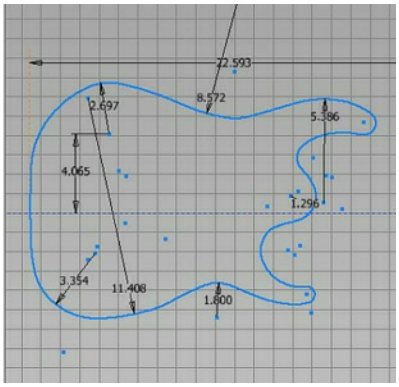
Rotate - turns a graphic round a centre point

Trim - cut or remove part of a line that crosses another

Extend - makes a line longer until it touches another line.

Key Modelling Features

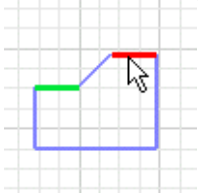
Sketches



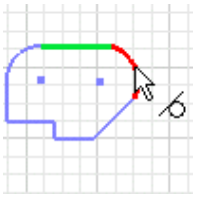
Sketches are the 2D drawings which 3D feature are are are are made. When you choose to make a sketch the range of drawing and dimension tools will become available. These include line, circle, and rectangle etc. From these 2D drawings you will be able to create 3D features. The shape drawn on a sketch is called a profile. It is this profile that will become a 3D model.

Constraints

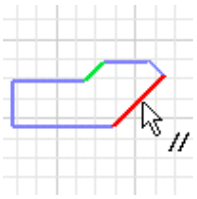
Constraints are used to control profiles. They fix lengths, angles, radii, diameters and can force lines to be locked to other lines or edges. Constraints are very important when drawing profiles and should always be used. You should be familiar with the following constraints:



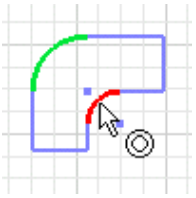
The equal **radius or length** constraint resizes selected arcs and circles to the same radius, or selected lines to the same length.



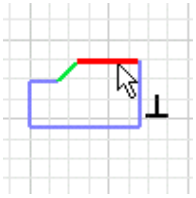
The **tangent** constraint causes two curves to be tangent to one another.



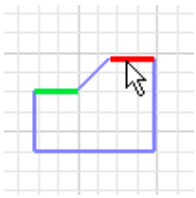
The **parallel** constraint causes two or more lines or ellipse axes to be constrained parallel to one another.



The **concentric** constraint causes two arcs, circles, or ellipses to be constrained to the same centre point.



The **perpendicular** constraint causes selected curves or ellipse axes to lie at right angles to one another.



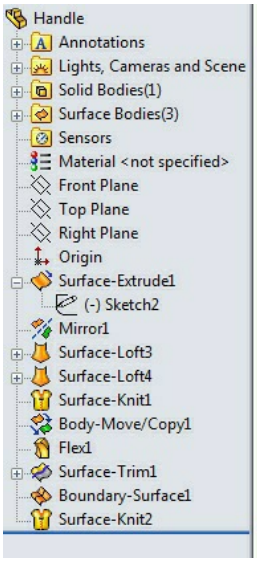
The **fixed** constraint causes points or curves to be constrained to a fixed location relative to the sketch coordinate system.

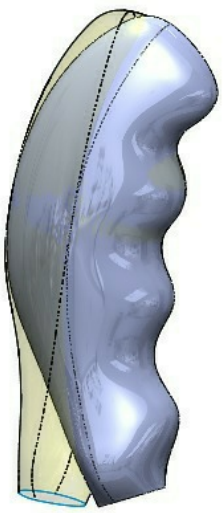
Features

A feature is the name given to types of 3D work, such as: extrusion evolve solid and shell. Features are mostly created from the profiles drawn in sketches, but some like fillet and chamfer are made by selecting the edge of a 3D feature and modifying it.

Modelling Tree

All 3D CAD programs use a modelling tree. This tree will show you workplanes, sketches and features. The order of the sketches and features will have an effect on the 3D model. The computer processes the sketches and features in order from top to bottom. Certain features can be turned off using the 'suppress' command.



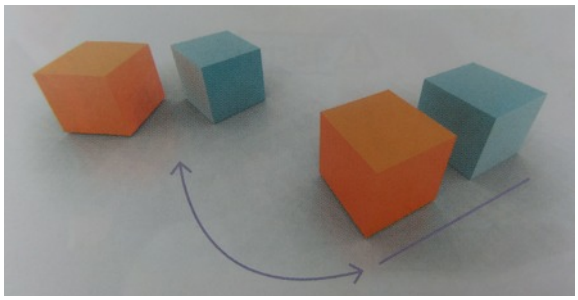


Components

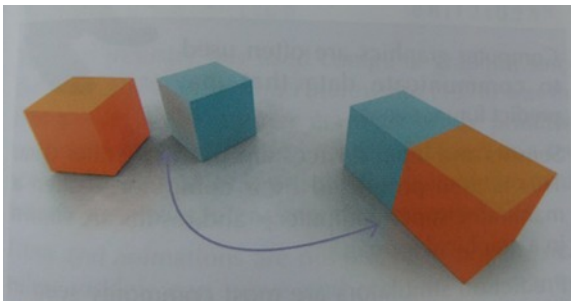
3D models are used to design or draw products or buildings that will be manufactured, simulated or illustrated. Real products and buildings are made of many individual parts. 3D CAD reflects this reality and so models are made of individual parts. Each part is called a component.

Assembly

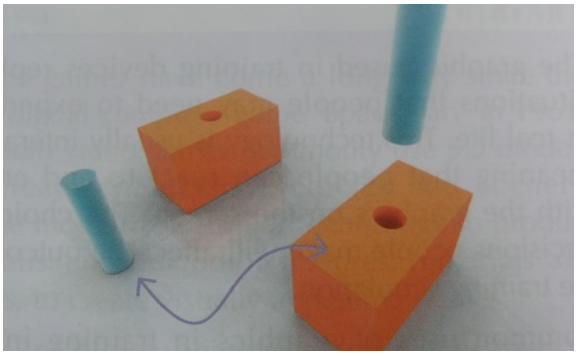
Assembly is the name given to the complete model that combines all components in the correct positions. Individual components are assembled using the following commands;



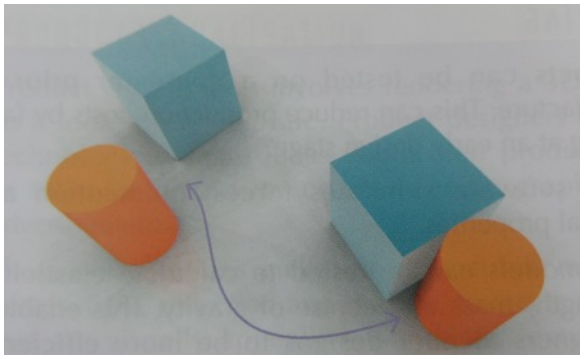
Align: Faces all in line
The alignment command allows you to force the face of one object to be in line with the face of another object.



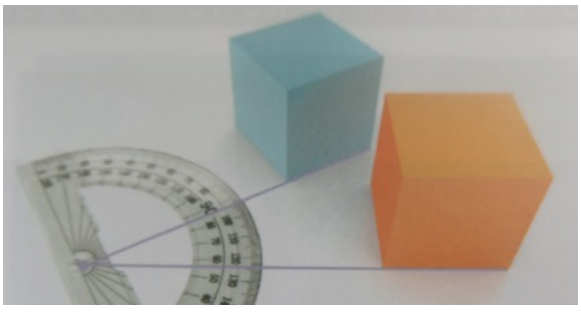
Mate: Let's stick together
The mate command joins the face of two objects together. These faces will be unable to separate but can slide around each other.



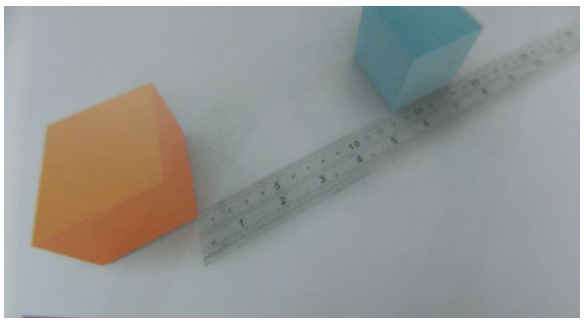
Centre axis: Falling in line
The centre axis or concentric command will allow cylindrical geometry to be centred with other cylindrical shapes.



Tangent: Sticky circles
Tangent is assembly command will lock the round face of a cylinder to the face of another object.



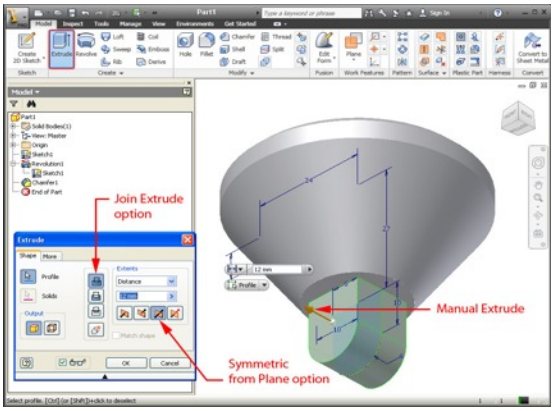
Orientate: Getting the angle
Some assemblies may have one component set at an angle to another component. The orientation angle is an angle set between the face or edge of two objects.



Offset: Set a distance
The offset tool is used in conjunction with mate, align or tangent commands and allows you to set a distance between the face or edge of two objects.

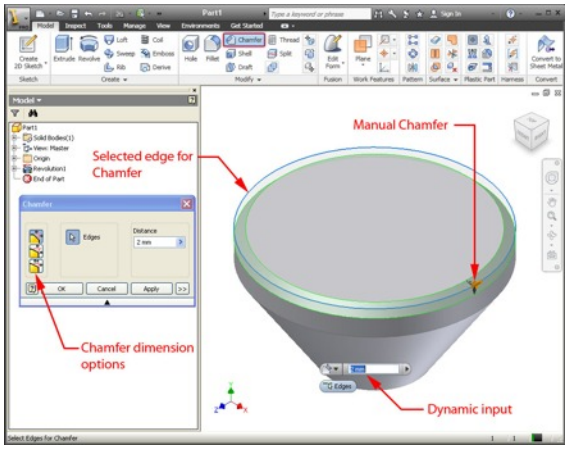
3D Modelling Tools

Extrusion - Add and Subtract



Extruded features are building blocks for creating and modifying solid features. It is the process of a 2D shape being pulled into a 3D shape. When creating an extruded feature, you specify the direction and depth. Material that is removed from an extrusion is known as ‘subtraction’.

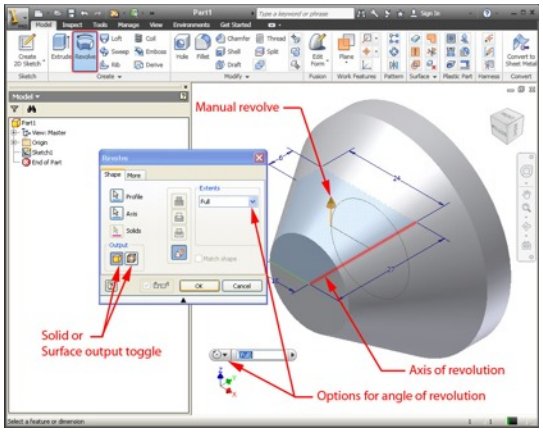
Chamfers and Fillets



Chamfers A straight edge applied to a corner. Chamfers can be equal distance from the edge or a different distance from the edge for each face.

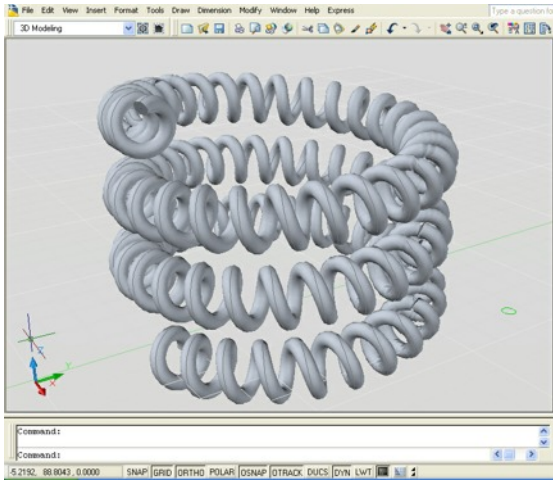
Fillets or **rounds** A round edge applied to a corner. A feature that rounds off or cap interior or exterior corners or features of a part. Fillets can be of constant or variable-radius.

Revolved Features



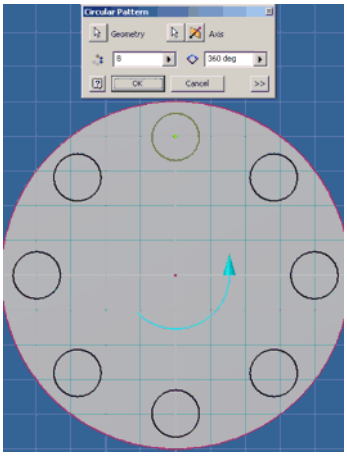
Revolved features are created by rotating one or more sketched profiles around an axis. The profile can be revolved through any angle measuring between zero and 360 degrees around an axis. The axis of revolution can be part of the profile or offset from it.

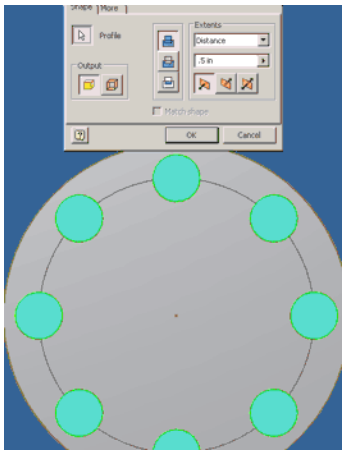
Helix



Helix coils are used to make objects like springs, or threads on cylindrical surfaces. A coil can be a new body in a **multi-body part**.

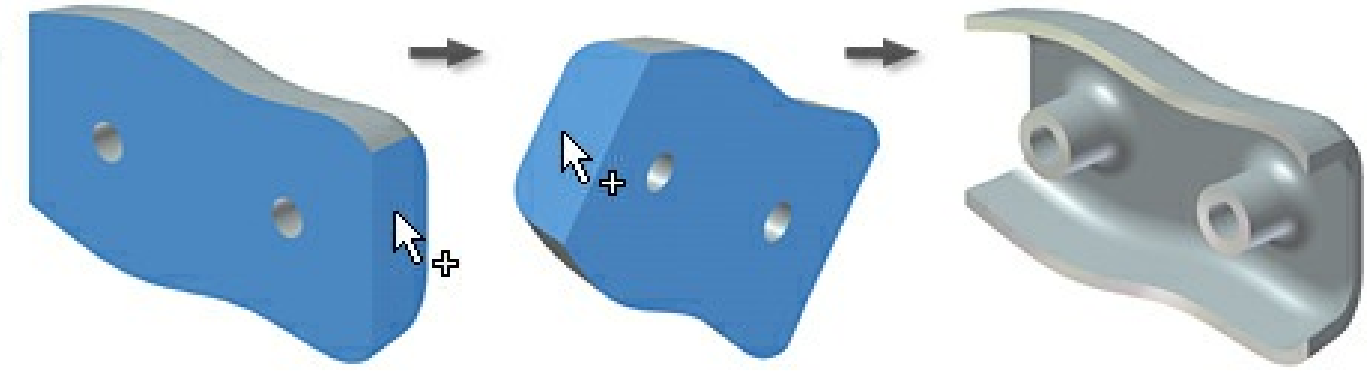
Modelling Edits





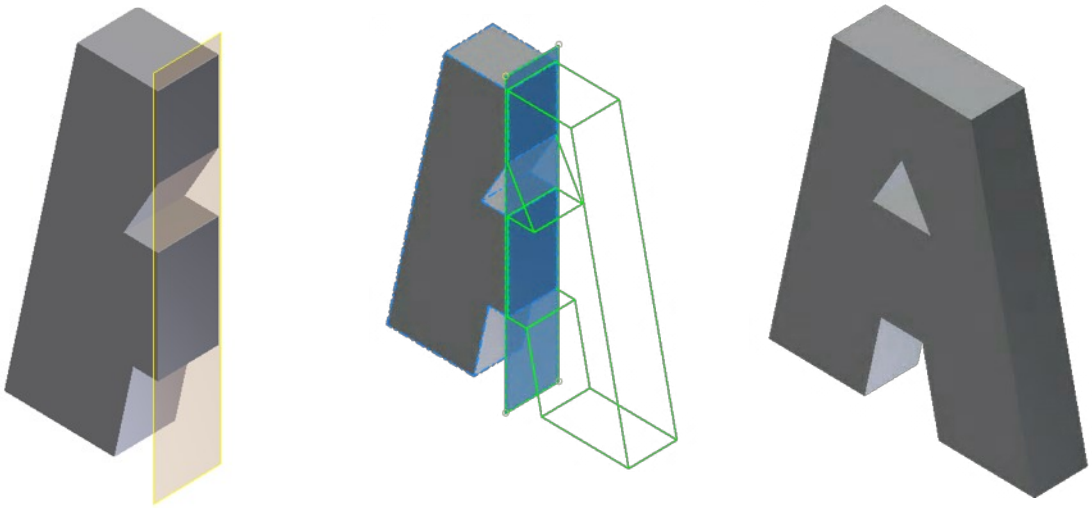
Radial and Linear Array

Features can be arranged in a circular or rectangular pattern to represent hole patterns or textures, slots, notches, or other symmetrical arrangements.



Shell

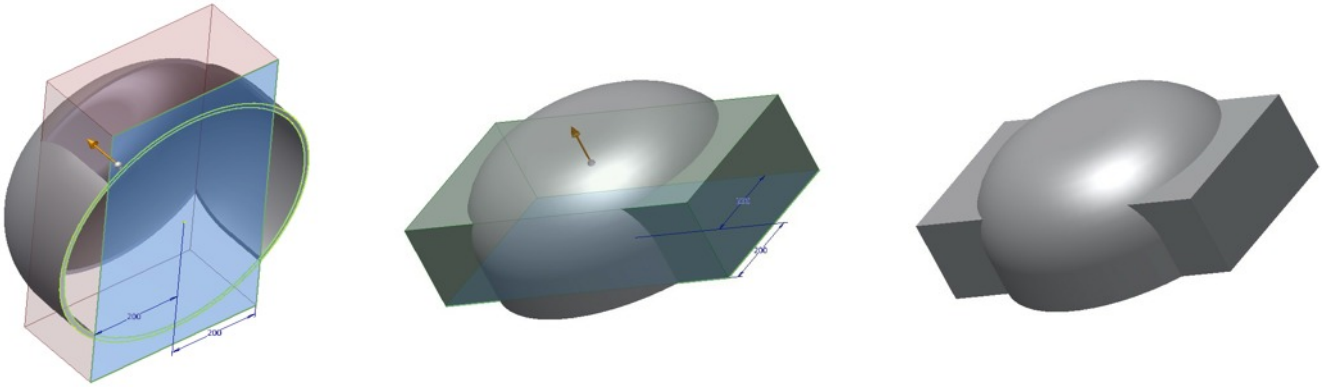
Material from the part interior is removed, leaving a hollow cavity, to a specified wall thickness. Changes to the dimensions of either the part or the shell automatically resize both.



Mirror

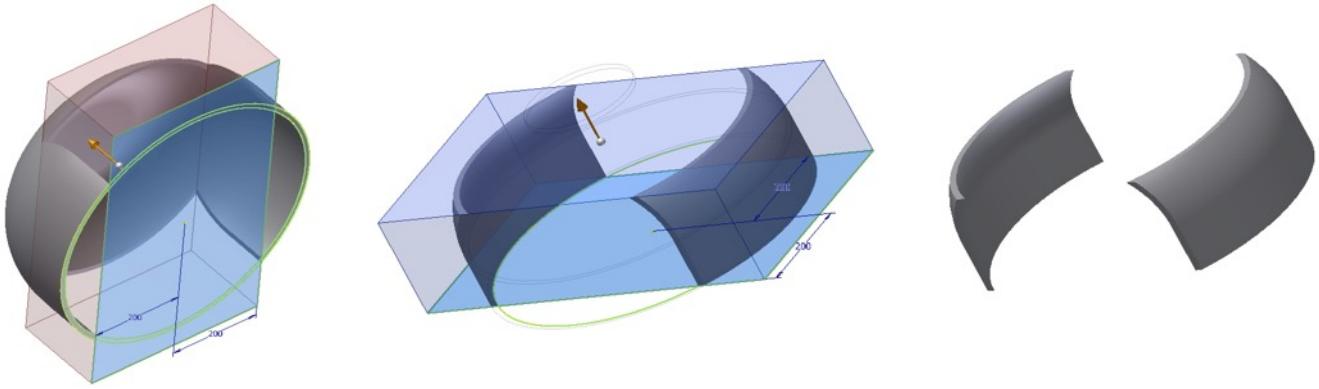
Features can be mirrored about any work plane or planar face. You can mirror solid features, work features, surface features, or the entire solid. A mirror of the entire solid allows mirroring of complex features such as shells or swept surfaces included in the solid.

Modelling Edits



Add/Subtract

The first feature in a part file is the base feature. If added to other solid bodies, the extrusion can modify the specified bodies with a add or subtract.



Intersection

An intersection creates a solid from the shared volume of the two features and removes any material outside their shared boundaries.

The 3 P's

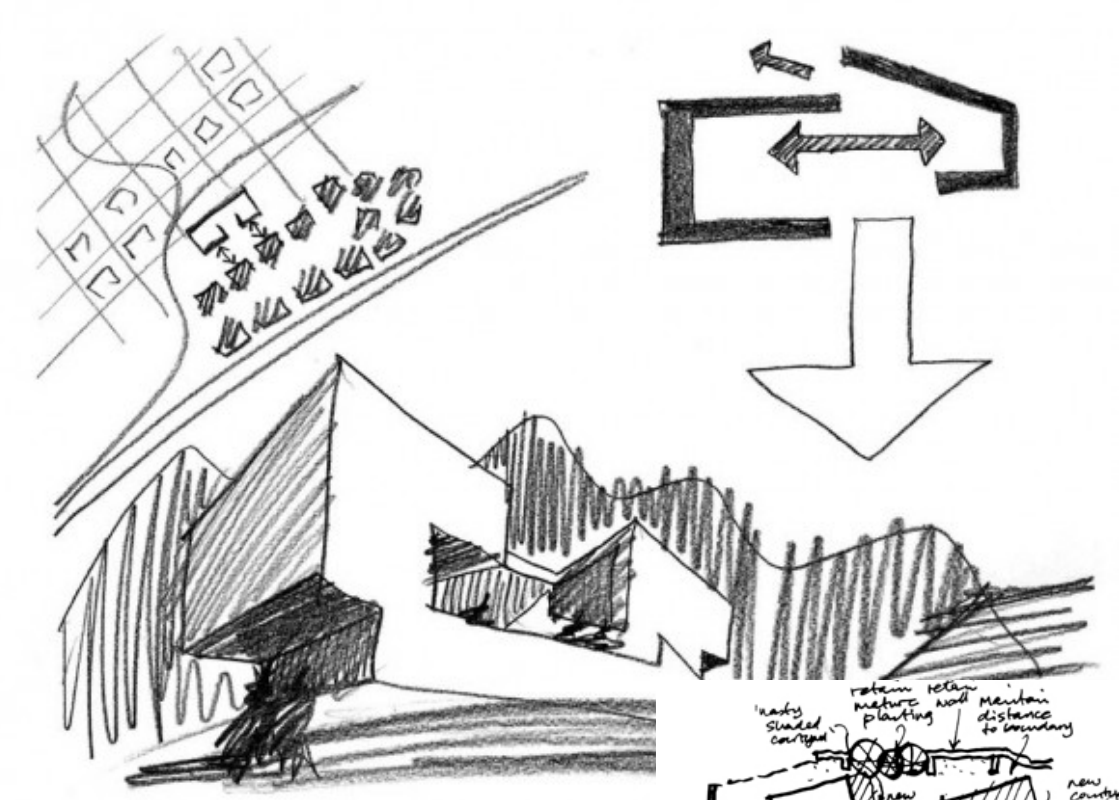
Throughout the Graphic Communication course, you will approach coursework tasks just as a professional designer would in industry. Graphics tasks are tackled using the **3 P's.**

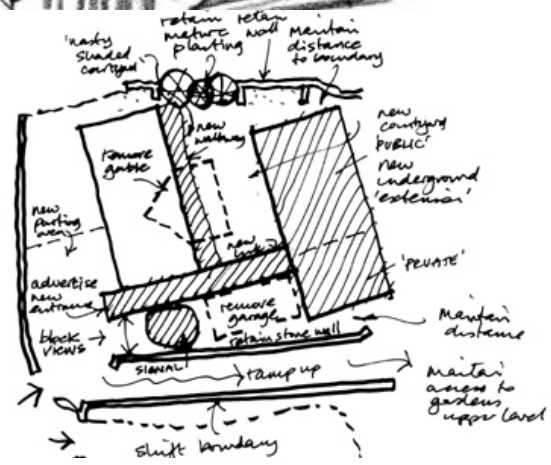
The first of the P's is the **Preliminary Sketches** usually carried out using freehand. These sketches consist of various drawings including all planning towards production and promotional drawings.

The second of the P's is the **Production Drawings** which consist of all drawings enabling the manufacture of the product being designed. The drawings will be in the form of CAD drawings including orthographic, sectioned, exploded isometric, etc.

The third of the P's is the **Promotional Graphics** and consists of all DTP drawings which promote all aspects of the product being designed. This will include posters, fliers, booklets, etc.

Preliminary Graphics





Concept sketching

Concept sketching is employed at a personal level to *quickly* externalise thoughts using simple line work. Also known as thumbnail, Thinking or Napkin Sketch. Used for generating initial ideas.

Production Graphics

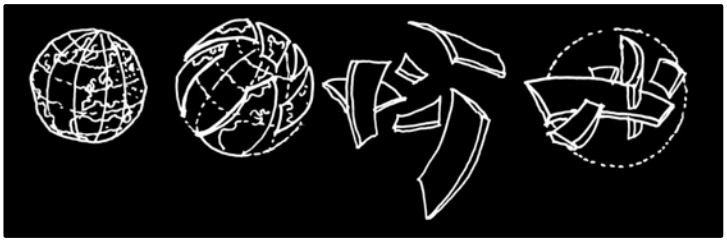
Detailed CAD drawings that give all relevant information for the construction a project or manufacture of a item. These drawings are usually fully dimensioned CAD drawings that show a high level of technical detail.

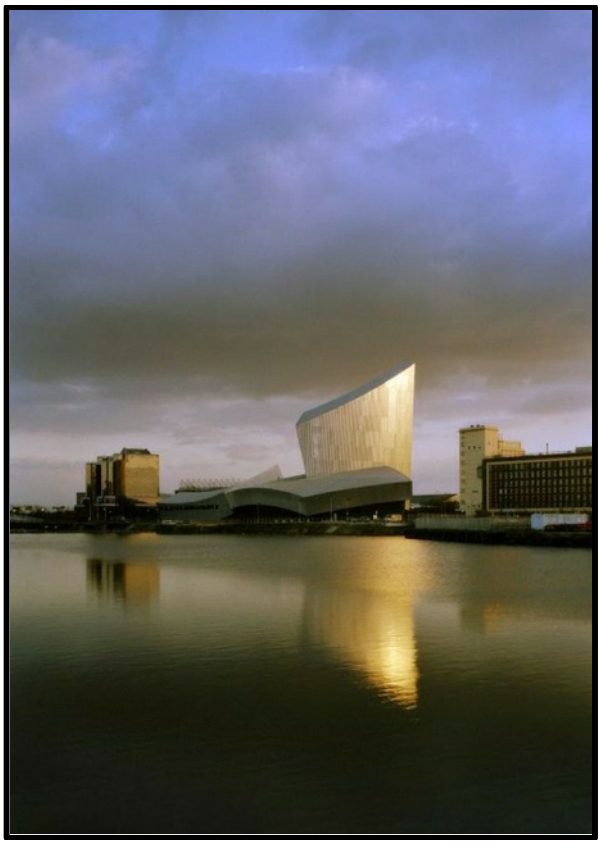
Production drawings also include:

- Orthographic views
- Pictorial views
- Sectional views
- Enlarged views

Promotional Graphics

Fully rendered illustrations and DTP material that promote all aspects of the product being designed. Promotional material may take the form of a poster, leaflet, web banner etc.



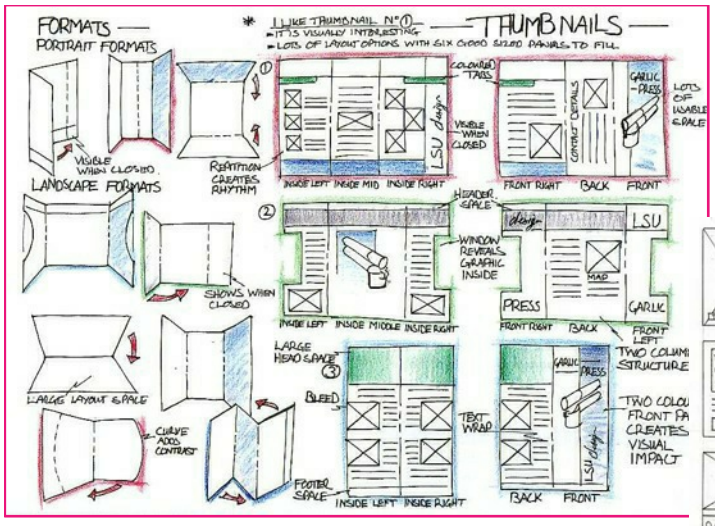


Stages of Desktop Publishing

Before a graphic designer would start on a publication, they would produce a range of preliminary sketches to help them create and develop their ideas. The different type of sketches are shown below.

Thumbnails

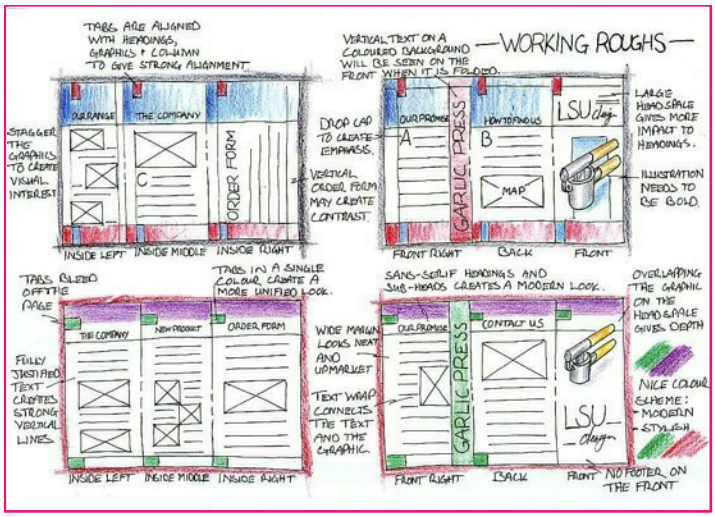
Thumbnail sketches are quick, first drafts of possible DTP layouts. The main focus is to help plan out the structure of the publication, eg, how many columns, position of titles and images etc however other design elements and principles can be considered at this stage. Thumbnail sketches can also be used to illustrate ideas to clients and to share ideas in the early design stages.



Images are represented with a cross across at this stage whilst straight lines represent the position of text.

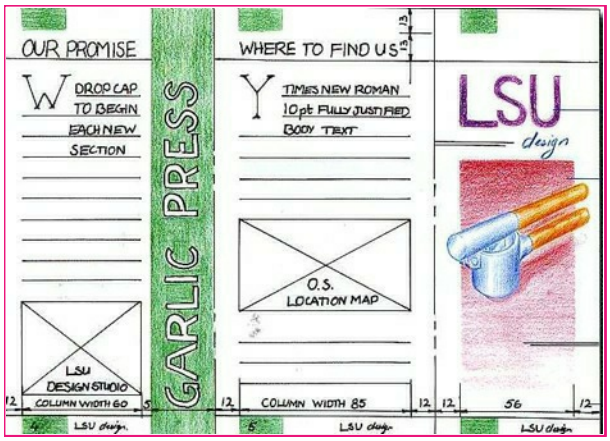
Working Roughs

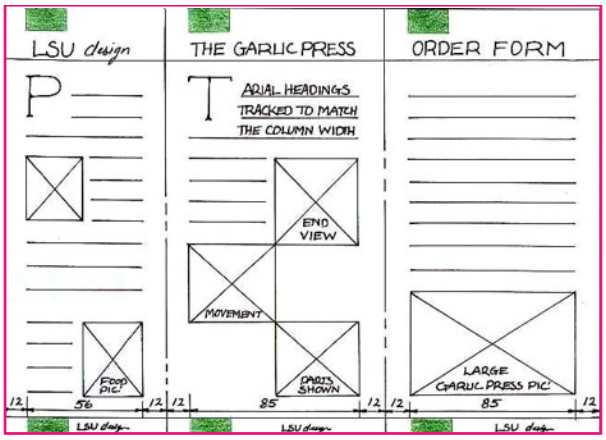
At this stage, a graphic designer would develop a small number of the thumbnails, spending more time on each layout and ensuring more detail in included. The working roughs would be larger than the thumbnails to allow more information to be recorded, eg, possible headings, subheadings, fonts, images, captions etc.



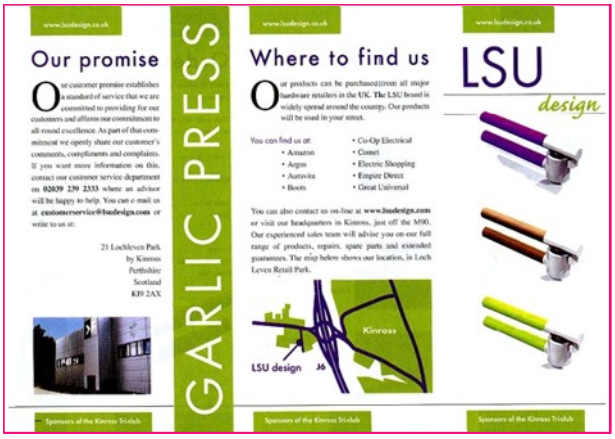
Presentation visuals

The presentation visual is an actual size, manually produced mock up of the intended document. It gives the designer a preliminary version to discuss with their clients. It also helps to firm up the structure prior to it being created on DTP software.
They should contain dimensional information relating to some of the main features within the publication, for example, the margin size and column breadths as well as the position of headers and footers. Other features like titles, font styles and exact images should also be decided at this stage.





The presentation visuals above show the sizes and details to be included on the final document.

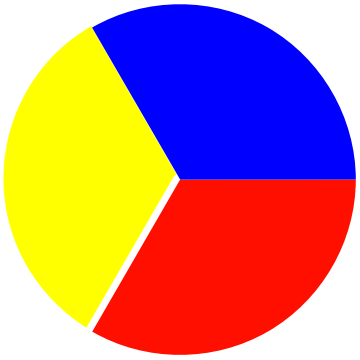


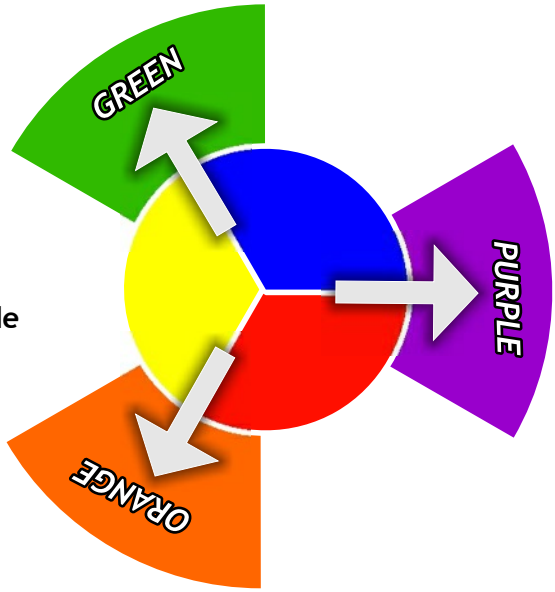
The final presentations should closely reflect what is shown in the presentation visuals. Some of the images have chanced positions slightly, this may have resulted from the discussion between the designer and the client.

Colour Theory

Colour plays an important part in Graphic Communication. It is used to make objects realistic and also to help generate moods, feelings or impressions. For your National 5 exam, you must be able to select and use colours correctly and also explain the reasons for your choice.

Primary Colours - Red, Blue & Yellow
All colours can be made from these.
They all contrast with each other





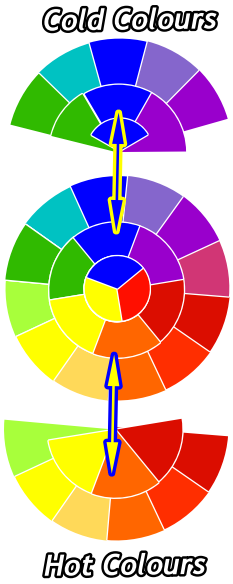
Secondary Colours - Green, Purple (violet) & Orange
All secondary colours are made from equal amounts of 2 Primary colours.

Tertiary Colours *- these are colours made from a secondary, with more of one primary added. They always have a primary then secondary in the name.*

Yellow-Green
Blue-Green

Yellow-Orange
Red-Orange

Red-Purple
Blue-Purple



Advancing and Receding

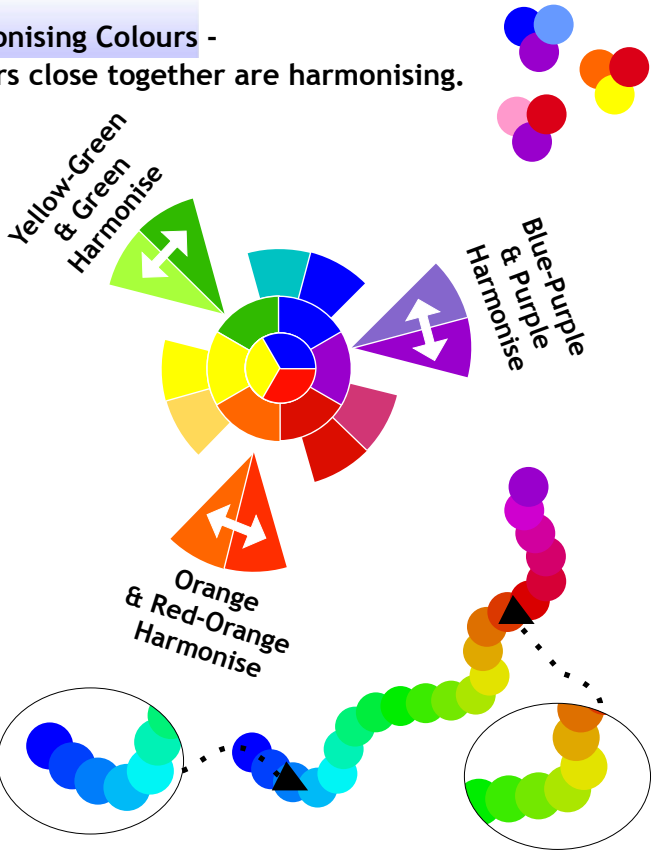
Hot Colours advance.
Cold colours recede.

Blue,Purple - Cold = Recede

Orange,Yellow, Red - Hot= Advance

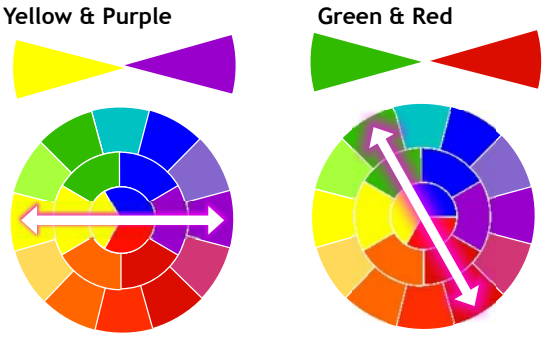
Harmonising Colours -

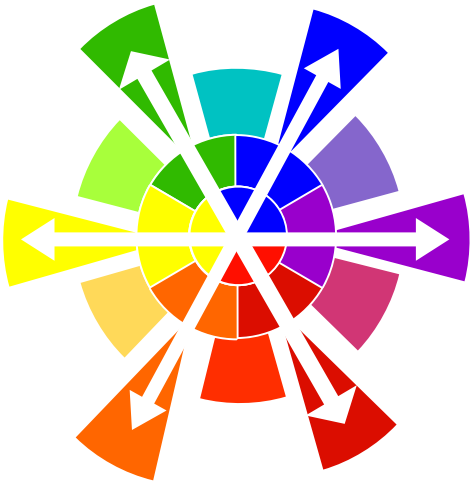
Colours close together are harmonising.



Contrasting Colours -

Colours at least two apart (except primaries) are contrasting.
Colours far apart or opposite each other are contrasting.





Tints & Shades

Adding white to a colour makes a TINT of that colour.

Adding black to a a colour makes a SHADE of that colour.

Colour Connotations

Colours are associated with certain situations. Sometimes this is a deliberate or conscious association and at other times it is psychological or unconscious. E.g. **Red** is associated with **dangerous or potentially dangerous situations**. (Red fire engines; fire extinguishers; red warning flags on beaches) **Green** is used to signify the opposite of red; that **it is safe**. (Green man at street crossings; green traffic light)

Red - great power of attraction, but too much can be tiring. Hot, bold, warm, exciting, festive, passionate, positive. Red can be associated with rage, aggression, danger, courage, masculinity and speed.

Orange - sunny, cheerful, and happy. Orange is one of the appetite colours associated with flavour and energy.

Yellow - The colour which is most easily seen (luminous). Bright, pleasant, happy, sunny, lively and cheerful. Yellow is often associated with holidays and sunshine.

Green - Green is the most restful of all the colours. Fresh, youthful, cool, quiet, soothing, natural and informal. It is also associated with safety, health and environmental concern.

Blue - Blue is more formal than red or yellow. Cool, sophisticated, aristocratic, serene, passive, elegant and reliable. Rarely used in food due to its association with mould.

Violet - cool, negative, retiring, subdued and solemn. Violet is associated with peacefulness.

Purple - purple combines the courage of red and the nobility of blue. Rich, pompous, impressive and regal. Purple is also seen as the colour preferred by moody people.

Brown - safe, reliable, wholesome, and natural. Brown is often associated with the earth.

Grey - neutral, sedate, restful, dignified, dull and inconspicuous. Grey is often associated with old age.

White - luminous, positive, light, delicate, cold and clean. White is often associated with innocence and purity.

Black - subdued, solemn, heavy and profound. Black is often associated with death, sorrow and evil.

Desktop Publishing

Desktop Publishing (DTP) enables the production of magazines, newspapers, books, promotional literature etc. to be created on a desktop computer or laptop. The publishing industry creates these documents and the physical paper documents are produced by the printing industry. The design is the result of the work of the graphic designer.

Benefits of DTP to the Graphic Designer

Graphic designers nowadays operate on a very flexible basis - work can be produced anywhere and any time using modern technology and send to the office via the internet. DTP packages allows exciting and imaginative displays to be very quickly and easily created. The main benefits of DTP software brings to the graphic designer are:

- It is simple to make modifications to images such as colour, shape and formatting.
- Further modifications to the design can easily be implemented on behalf of the editor or client.
- The grid structure template within DTP software enables designs to be created accurately and quickly.
- Design proposals can be sent to the editor or client electronically to save time. Their responses ca be returned this way.
- The graphic designer can work from home. This saves travel costs and environmental impact of their journey.

Benefits of DTP to the Graphic Design Industry

As there is great competition among newspapers and magazines in the market and the circulation of most printed newspapers is declining, DTP provides many advantages to the industry.

- Proposals and final editions with full designs and images can be sent electronically. These can be forwarded onto the printer in this way.
- News reports can be sent from anywhere in the world email.
- The time it takes to design and publish a document is greatly reduced. Modifications can easily be made by the editor and sent to the printer.
- Common features within a publication can be quickly produced via templates such as footers, running headers etc.

Glossary of DTP terms

Before undertaking any design work, it is important to become familiar with the key DTP terms included below.

Alignment Positioning of text in a column or on a page. This can be in the form Left aligned, right, centre or justified.

Auto Tracing This where the application software automatically traces round the outline of an object.

Ampersand The symbol “&”, which means “and”.

Ascender The part of a letterform which sits above the main body of the text, for example b, d, h, k, l.

Asymmetrical Letters or objects set in no apparent order or pattern.

B**anner** Main headline across the top of a page

Box A rectangular box around text or a graphic

Baseline The imaginary line that runs along the base of the body of letters in a line of text.

Binding The process of gluing and covering the pages of a document or book.

Bitmap Describes a computer image made up of screen dots (pixels).

Black Letter Also known as Gothic or Old English, a style of handwriting made with broad-nibbed pens.

Body (text) The main text part of a document usually smaller than 14 Points in size.

Bullet An ornamental dot or other shape used to mark an item in a list or to add emphasis to a piece of text.

Colour gradient	One colour merging from light to dark or with a different colour.
Centre-Aligned	Text which is aligned around it's centre point.
Chapter Head	The title heading that appears on every page of or opening page of a book.
Character Set	The complete collection of all possible characters for a font.
Composition	To process of arranging elements such as text and graphics in the most suitable and economical way.
Condensed Type	A narrower, more compact version of a typeface.
Caption	The text which explains an image.
Column Rules	vertical lines between columns.
Colour fill	Single colour within an enclosed area.
Centre spread	Two adjacent pages which can be found in the middle of a magazine.
Column guides	non printable guides found in DTP software to allow the planning of work.
Crop	To trim excess parts of a screen graphic. This can be square or fully cropped.
DPI	**Dots per inch.** A measurement of resolution of output devices. The more dots per inch the greater the clarity of the graphic.
Drop Capital	This is a large starting letter which si bigger than the rest of the text. It falls below the baseline.
Descender	Any part of a letterform which sits below the baseline.

Display type	The name given to text which is used for headlines or for catching attention.
DPI	Dots Per Inch – the term used to describe the resolution of an image, sometimes used to refer to screen images too.
DXF	Drawing Exchange Format. A system controlling the format of data interchanged between CAG systems. Drawing files held in DXF format will have the suffix DXF.
Facing Pages	Pages which seen to be facing each other in a publication.
Flush Left/Right	Describes text, which is perfectly aligned on one side.
Folio	Page number.
Font	Collective name for every letter, number, symbol, accent, ligature, fraction and punctuation mark for a typeface at a particular size.
Gutter	The space between columns.
Footer	The space at the bottom of the page where the page number and any other text is placed.
Frame	A box used to hold an imported graphic or text so as to allow movement around the page.
Grid	All CAG systems provide 'transparent' grids; patterns which appear on the screen to aid layout but do not form part of a drawing.
Handles	The small rectangles that surround a selected shape. Text blocks in DTP software commonly have four handles.
Hanging Indent	Describes when the first line of a paragraph aligns to the margin, but the following lines are indented.
Headline	The title or main introductory text in a publication.
Hyphenation	The process of allowing a word which will not fit fully on a line to be split with a hyphen. In Desktop Publishing hyphenation can easily be controlled.

Header Space	The space at the top of the page where the umber and any other text is placed**.**
Indent	Where one or several lines of text are positioned a specific distance from the margins or main text.
Import	To bring in a copy of a text file or graphics, for example from an external application to the page layout application.
Italics	Slanted text which resembles handwriting. Often used for emphasis.
Justified Text	Text which has word spacing added so that it aligns to both edges of columns or margins.
Kerning	The removal of excess space between letters to improve the visual impact of text. For example, in the large type used for headlines.
Kerning Pairs	Specific pairs of letters which, because of their shape, re- quire to have spacing between them adjusted e.g. Po, Pi, Pe, Ko, Te. between lines of text.
Landscape	Page orientation with the long edge at the bottom.
Leading	The addition of space between lines of text, so called, be- cause in traditional typesetting, lead was used as a spacer.
Layers	CAG software allows drawings to be built up as a series of layers, each layer dedicated to one aspect of the layout, e.g. Images, text, background. Layers can be switched in and out and act like clear film overlays which are always in perfect alignment.
Margin	The unprinted space around the edge of a page.
Orphan	A line of text that begins a paragraph but has been left at the bottom of the previous column or page. To be avoided in page layout.

Portrait	Description of the shape of a document page which is higher than it is wide. (See Landscape.)
Proof	A test print of a document used for checking for mistakes prior to printing.
Point	The traditional unit of type measurement equal to $^{1}/_{72}$ inch or 12 Picas.
Portrait	Page orientation where short sizes are at the bottom.
Registration	The correct alignment of one image on top of another in printing.
Reverse	Used to describe placing white text on a black or dark background.
Register Mark	Printers cross-hairs (thin lines) placed outside the page area in order to check that the printed colours are accurate.
Spine	Bound edge of a publication.
Sans Serif	Meaning "without serifs". Any typeface which does not have bars across the ends of letter strokes.
Serif	Any typeface which has terminal strokes at the ends of letters.
Spread	Two facing pages. This is also known as a double page spread.
Snap	A CAG command that locks or 'Snaps' the cursor to the nearest 'snapable' point. This might be points on a screen-displayed grid or any point naturally arising as a 'lockable' point (a line-end or vertex). Such 'lockable' points can often be forced into a drawing by special commands. The 'snap' facility is a powerful tool for precision work.
Template	A layout that acts as a model, providing the structure and general layout for the document.

Vector Graphic A graphic produced using a drawing programme in which the image is described using points, lines and curves. Vectors are generally able to be scaled without apparent loss of quality.

Thumb Nails Design sketches of page layouts.

Type Sizes The standard 'point' system used to describe type sizes is based on 72 points to an inch. (12 points is, therefore, 1/6").

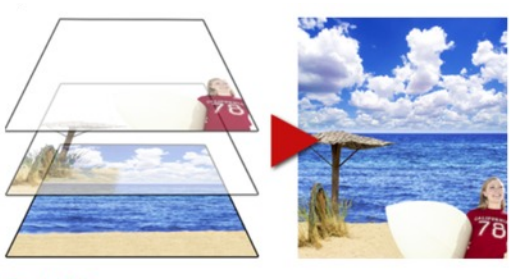
White Space The blank areas on a page which are not occupied by text, illustrations or colours.

Widow A word or line belonging to a preceding paragraph, which is added to a new page or column.

Anatomy of a Page

Master Page

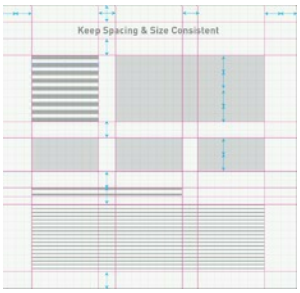
A master page is an important feature of DTP as it establishes a grid structure for text and graphics within a layout. The master page is applied to each page of the publication to ensure consistency in it's design.



Layers

Layers allow the graphic designer to control separate parts of the layout. Headers, footers and margins may be stored on one layer, text on the second and images on the third.

Grid/snap to grid

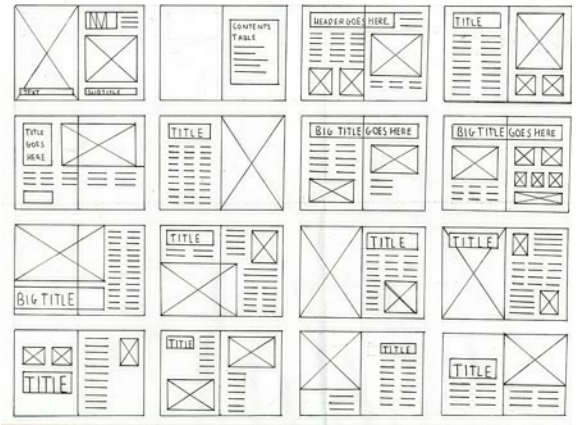


Before adding text or graphics to the page, the layout should be prepared on a grid. Activating the snap-to-grid option means that features can be placed quickly and accurately on top of the grid.

Grid lines

Guidelines can be pulled in from the side and top rulers to create a clear grid structure that can be repeated through a document.

Grid Structure

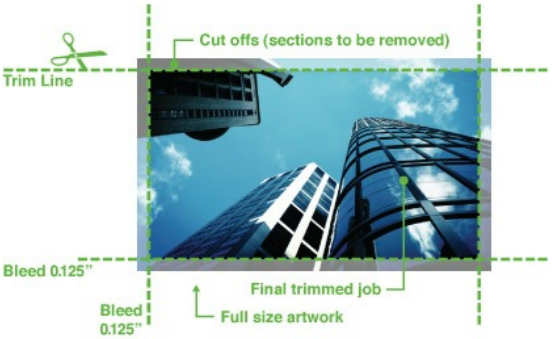


Grids are a series of intersecting axis that create horizontal and vertical divisions of space on a page. Grids allow the placement and interaction of visual elements creating movement across a page. Grids can be simple, complex- all depending on the content. Grids are not meant to be restrictive, they can be modified to fit content. The function of a grid is to aid organisation and structure, readability, rhythm and movement.

Elements of a grid:

- Margins
- Columns
- Grid modules Rows (flowlines)
- Gutters (column intervals)

Bleed

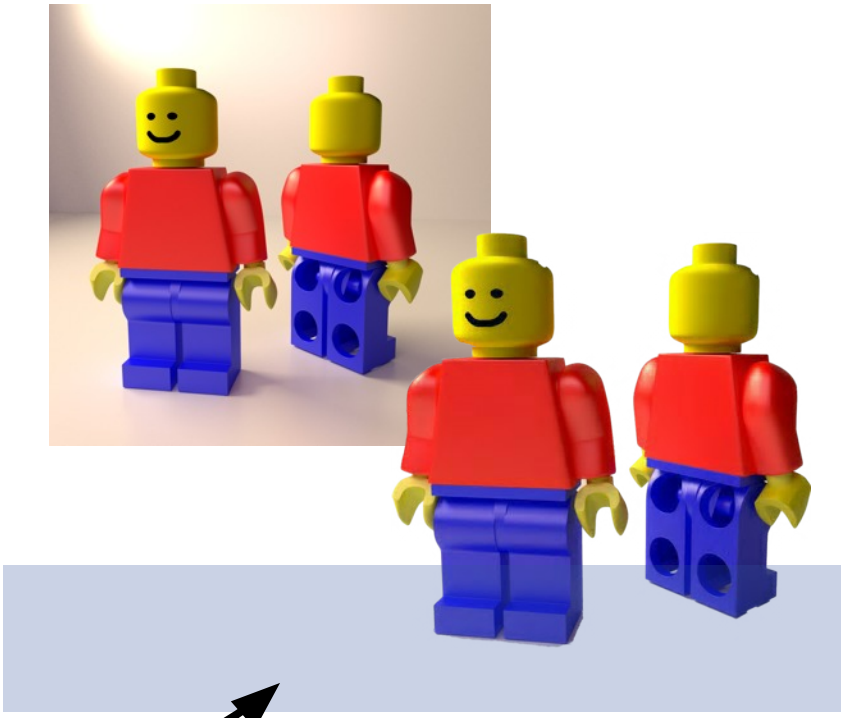


Most printing equipment cannot print right to the edge of paper. These gaps are called margins. A bleed is a technique where an image or graphic overlaps the edge of the trimmed page. Crop marks are added to highlight where a page is trimmed.

DTP Edits

Cropping

Cropping is a tool which allows you to delete unwanted parts of an image. You can crop an image by pulling in the sides or by cropping around the outline of the shape, this is known as square crop and full crop.



Transparency

When you make an image/ text/block of colour etc. 'see-through' so that you can see anything positioned behind. Various levels of transparency can be achieved on DTP software.

Text Wrap

When you alter text to wrap around an image or shape.

Best Mobile Photo Printers for 2012

Printing photographs has been made easy with the advancement of technology. In the past, only professional photo developers can produce printed images from the negatives used in film based cameras. The innovation began with the introduction of digital cameras into the mainstream. This opened the opportunity for users to take images at leisure and print still photos from their home printers. But given the huge footprint of earlier inkjets, these were definitely not intended for mobile use.

Technology responded to the requirement of mobility so that users can print photos wherever they are through the use of mobile photo printers. The latest lineup of mobile photo inkjets is ideal for use in the event of family, school and corporate gatherings so that guests could get hold of an instant photo souvenir as they head back home.

One of the advantages of owning a mobile photo printer is its handy nature. You can bring it along with you in various locations and print images right on the spot. Designed compact and portable, these devices occupy only a little space in a baggage and are typically powered by batteries.

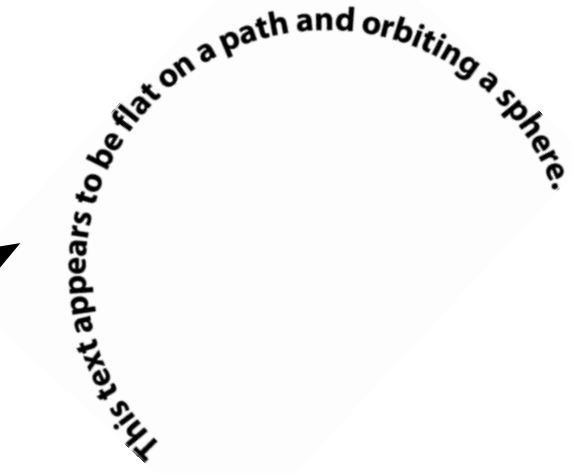
Format: Picture link (small picture only) – Kodak ESP-7250 All-in-One Printer – $221.75 - Features: built-in Wi-Fi, 802.11 b/g/n and network-enabled for iPhone, iPod touch, and iPad

Format: Picture link (small picture only) – Canon Pixma IP-100 Mobile Photo Printer – $319.19 - Features: Print borderless color photos from the car or elsewhere, wireless printing from a PC, PDA, or camera phone and direct printing from a digital camera.

What about the ink? If your concern is about the ink, worry not because some

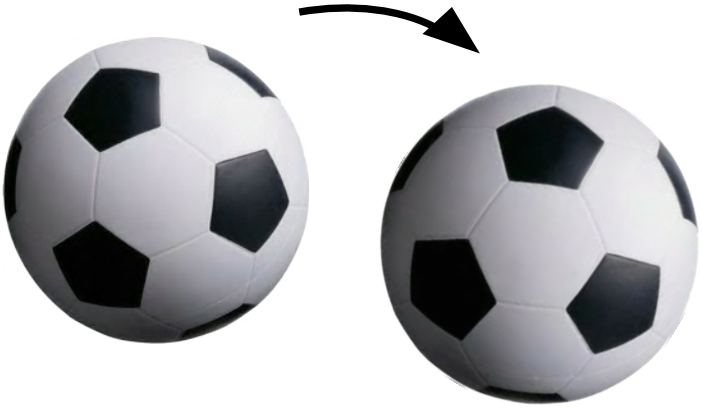
Flow Text Along a path

This is when a line or shape is drawn and used as a path for text. You can create any shape and this can make for a more interesting design, drawing the reader in.



Rotate

Rotate is when an image is rotated like the second images shown opposite.



Drop Shadow

Creates emphasis by applying a shadow and making an image stand out in a layout.

Colour Fill

Colour fills are added to a background to enhance a product or image.

Two Colour Gradient Fill

This is generally to be avoided in graphic layouts. When used badly it can create colour clashes and dominate a layout.

Gradient Fill

Gradient fills can provide a more subtle backdrop, especially when fading to white.

Textured Fill

Useful when creating textured backgrounds for layout.

Lines & Shapes

Objects that have dimension (height and weight).created by a basic structure of lines. The three basic shapes are square, circle, and triangle.

Design Elements and Principles

Good graphic design relies on the graphic designer understanding what makes a layout work. The graphic designer breaks the layout down into smaller parts and works with each part in turn. These smaller parts are called design elements and design principles. It is important to look at design elements and principles in combination; how they work together. It is just as important to apply design elements and principles in combination with DTP features.

Elements of graphic design are the parts;
- They structure and carry the work.
- They are the tools that are collectively used to create the design or layout.

Principles of graphics design are the concepts;
- They affect content and message.
- They describe how the tools are used to convey the meaning or message behind the design.

Design Elements

These are the design elements you should become familiar with:

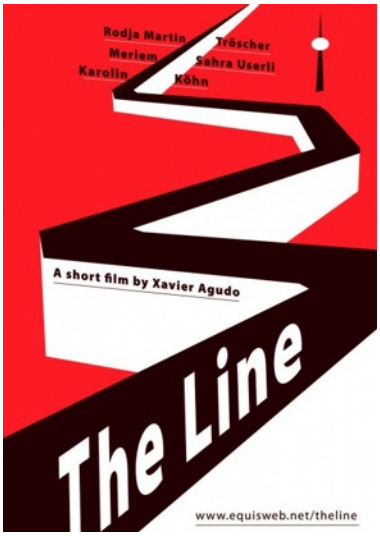
Line
Form
Space
Texture
Shape
Colour
Value
Pattern

Design Principles

These are the design principles you should become familiar with:

Balance
Unity
Repetition
Harmony
Alignment
Depth
Emphasis and dominance
Contrast

Design Elements



Line

Lines are used to;

Organize, connect, separate
Create movement
Provide texture
Convey a mood or emotion
Define shapes
Provide emphasis
Provide a framework

Lines may be vertical, horizontal or diagonal, curved, straight, zigzag, or dotted.

Form

Shows an object in space, the mass or positive space it occupies. The term usually used when describing 3-D objects.

Space

The area around, within or between images or parts of an image. Relates to positive and negative space. Negative space or white space as it is known, it is an important element of design. The balance between positive (or non-white) and the use of negative spaces is key to aesthetic composition.

Texture

The feel, real or implied, on an object or its surface. This can relate to the graphic used within a layout or actual texture of the paper itself.

Shape

Area enclosed when both sides of a line meet. Shapes can be geometric or organic.

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Colour

Using colour creatively can make an enormous difference to the impact of a layout. It is important to consider colour combinations in a layout, not just individual colours. If colour is used correctly, it can:

•Make a product stand out

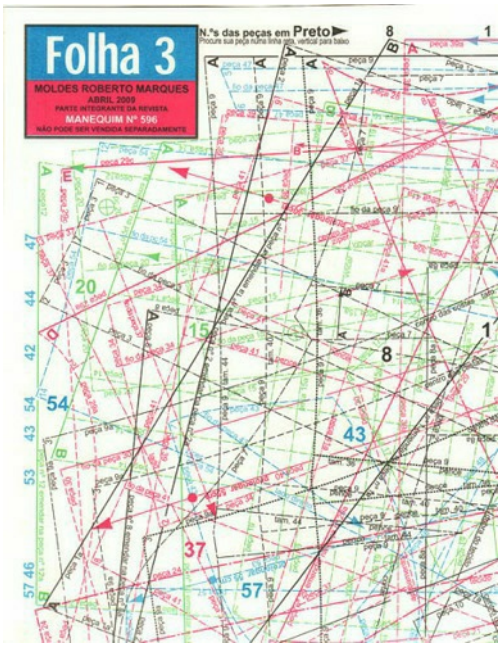
•Give a layout visual impact

•Unify a layout

•Connect with a target market

Value

The lightness of darkness of an object or colour. Often used within photographs or graphic images. This can give a layout a light, airy feel or a dark, heavy feel.



Pattern

A regular arrangement of alternate lines, shapes, and colours in or motifs. Patterns are typically used as backdrops in a page layout, as a watermark, as a fill for other shapes, as a way to lead the eye (such as a pattern of dots that seem to lead the eye toward a specific part of the page), or as a suggestion of a certain object, theme, or idea (for instance, a pattern of wavy lines in a logo to suggest water or fluidity).

Design Principles

Balance

A feeling of balance results when the elements of a design are arranged symmetrically or asymmetrically to create the emphasis or importance. In layouts with an even balance the graphics don't overpower the text and the page doesn't seem to tilt to one side or the other.

Symmetry

Asymmetry

Unity, Repetition & Harmony

Unity, repetition and Harmony create a feeling of wholeness or that all the parts of the piece form a coherent whole. It is the positioning of all elements so that a consistent and pleasing layout is produced. Proximity helps creates organisation. By grouping similar elements together or in close proximity, you create a relationship between those elements. Repeating colours and shapes and overlapping images and text also help create unity and harmony.

The principle of repetition simply means the reusing of the same or similar elements throughout the design. Repetition of certain design elements throughout a publication brings a clear sense of unity and consistency. Where contrast shows differences, repetition is about subtly using elements to make sure the design is viewed as being part of a larger whole. For example, a consistent background and consistent use of type adds unity to publication. However, you must be careful not to have too much repetition or background elements will soon become boring.

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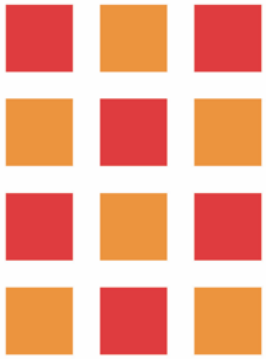
Alignment

Alignment refers to lining up the top, bottom, sides, or middle of text or graphic elements on a page. Good alignment helps improve the structure of the layout and makes a page feel organised and easy to follow. It contributes to neatness and sharpness.



Depth

Creating the illusion of depth on a 2D page is an important way to give your layouts more visual impact. It is easily done using different techniques such as:

- Layering of text and images
- Drop shadows
- Flash bars

Emphasis & Dominance

Graphic layouts are often scanned quickly by the reader. If the layout is bland or without a focal point is may not hold the reader's attention long enough to get its message across. Your layouts will include graphics and text which may be split into two or three parts. A title or heading and body text. You should try to ensure that at least one of these elements is dominant or emphasised. Dominance occurs when one item stands out more than others and is usually achieved by creating contrast in size. Emphasis happens when an item is made more eye-catching and is usually achieved through contrast in colour.

Contrast

Contrast allows you to emphasize or highlight key elements within your design. Contrast is created when two elements are total opposites. This doesn't necessarily have to be colours either. It can be achieved with fonts (classic/contemporary), lines (thick/thin) and shapes (big/small). For it to work successfully though, it must be strong and obvious. It needs to make an impact.

Printing Processes

Inkjet

Inkjet printers the most common format of printer and they come in a range of sizes. Inkjet printers deliver photo-quality prints and fantastic colour quality however the inks used are expensive to replace and the printers tend to be slower than laser or wide format printers.

Laser

Laser printers are the backbone of most schools, universities and offices. They are designed for relatively high print runs and come in monochrome or colour. Whilst monochrome prints can be very sharp, colour on laser printers can appear washed out and muted.

Offset Lithography

Whilst inkjet printers are expensive for large print runs, laser printers can be slow, expensive and of dubious quality. Offset lithography is printing process used in industry for medium and long print runs of products such as magazines, posters, packaging and books. In **offset-lithography**, the paper does not come into direct contact with the printing plate. Instead, the image is transferred to a rubber roller.

Printing and the Environment

In the recent past, printing and paper industries were responsible for significant forms of pollution to our environment. This has changed with DTP production, digital printing methods and computer aided manufacture (CAM). Modern printing methods bring a number of benefits to our industry and society:

- The quantities of paper and inks can be controlled digitally to minimise waste.
- Printing inks are becoming ‘greener’. Eco-friendly inks based on vegetable and soy are beginning to replace petroleum-based inks.
- Modern printing technology can use paper that is 100% recycled without loss of quality.
- Electronic newspapers and news feeds further reduce the use of paper.
- Modern printing technologies are more energy efficient than previous methods.

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Graphic Communication & Society

Computer technology has revolutionised almost every industry, but none more so than graphics. Computers are used in a full range of preliminary, production and promotional presentations. In all instances, computers have made the design, editing and production of graphical items quicker, of higher quality and most cost effective.

Graphic communication technologies have impacted and influenced industry and society in the following ways.

Paperless Office

A **paperless office** is a work environment in which the use of paper is eliminated or greatly reduced. This is done by converting documents and other papers into digital form. Many companies have moved from paper based files to digital format in an attempt to become more environmentally friendly. In architectural and engineering companies, this has led to conversion of original drawings by scanning the original or reproducing the drawings on CAD. The advantages and disadvantages of these methods are listed below:

Re-drawing

Advantages:
- Option to add layers
- Easy to edit/modify
- Can use in simulations
- Produces vector graphic
- Small file size
- Updated drawing to include modern drawing standards

Disadvantages:
- Very time consuming
- Mistakes could be made

Scanning

Advantages:

- Speed
- File can be archived
- File can be emailed
- Files are easily viewed on electronic devices

Disadvantages
- Drawings cannot be edited
- File sizes
- Produces raster graphic
- Physical drawing sizes may prove too large to scan in one attempt

Benefits of a Paperless Office:

- A paperless office uses less physical space when bulky filing cabinets are eliminated or reduced.
- electronic faxes and email replace the need to print, mail and ship documents to clients, which reduces expenses, as does lowering your investment in reams of paper.
- The chances of losing important documents are lower when scanned and filed electronically, and the documents are often easier to find in an electronic system
- Processing documents electronically opens up the opportunity for employees to work remotely and for you to offer flexible work schedules, particularly if you employ remote access to the company system.
- clients may view a paperless office favourably, approving of an environmentally friendly approach or admiring an efficient, cutting-edge company.

Remote Working

The movement towards working digitally has created opportunities for employees to work from home. It provides flexibility, helps with childcare and cuts down wasted time and money spent commuting. It can also be can be a great way to attract employees in a competitive market, as well as increase retention and improve staff morale.

The Internet

The internet has revolutionised communication around the world. Prior to the worldwide wed, communication of ideas was much slower, often relying on posting paper copies of documents or sending them via fax. Now, with email, companies can send text, images, animations and even programs to anywhere on the planet. Email has improved communication across international boundaries and is used by many companies for communications, marketing purposes and coordinating with business partners, suppliers and customers.

Sending Files

When sending a file over the internet, it is important to ensure that the files are compatible with the person that is receiving the file. Possible complication arise when:

- File types are incompatible with programs being used
- Drawing standards differ between international boundaries
- Files cannot be worked on simultaneously by different parties
- Possible complications in language barriers

Computer Aided Manufacture (CAM)

The development of Computer Aided Manufacturing (CAM) technology allows 2D OR 3D graphics to control CNC machines, laser cutters and 3D printers to produce physical objects. Some 3D CAD software simulates (tests) the product prior to manufacture. This had revolutionised manufacturing and engineering industries. Before the development of CAM technology, physical models would have been made by hand. The advantages of this are:

- Physical models allow people to appreciate the proportions of a particular item
- Physical models can be used to test particular features
- Physical models cannot be altered eased easily

However, the development the 3D CAD model also has many advantages:

- 3D CAD Models can be emailed around the world
- 3D CAD models can be tested under various conditions (loading, strength, material)
- 3D CAD models can be illustrated and animated
- 3D CAD models can be used to manufacture the final item.

Testing

The testing of 3D CAD models allows manufacturer to:

- Check that the product will work as intended and refine ideas if required.
- Identify areas where the product can be made less expensive ie. reducing size or strength of material at parts that are not under load.

Mobile Marketing & Mobile Apps

In recent years, smart phones, tablets, and other handheld devices have flooded the marketplace. This has had a massive impact on the way companies operate their business, particularly as they need their website to be compatible with all of the devices that are being used to access the web. This has seen the rise of mobile marketing, a promotional activity designed for delivery to cell phones, smart phones and other handheld devices. The expanding capabilities of mobile devices also enable new types of interactive marketing. New mobile marketing channels include:

- **Location-based service (LBS)** which involves detecting the area the user is connecting from (geolocation) and sending marketing messages for businesses in that area.
- **Augmented reality mobile campaigns** which overlay the user's phone display with location-specific information about businesses and products.
- **2D barcodes** which are barcodes that scan vertically as well as horizontally to include much more information. A mobile user can scan barcodes in the environment to access associated information.
- **GPS messaging** which involves location-specific messages that the user picks up when he comes into range.

Challenges for the designer:

- Difficult to incorporate a lot of information into a small screen
- Different phone sizes have different screens and different resolution, this can affect the quality of the presentation
- It can be difficult to plan a layout that is suitable for all mobile phones
- Touch screen phones use an 'on screen' keyboard which can take up valuable space.

Challenges for the customer:

- Phones are targets for thieves therefore there can be security issues with things like boarding passes, online banking.
- Phones may run out of battery making access difficult
- Screen may be cracked which reduces visibility and may not display QR codes properly
- Low resolution may affect visibility and the function of QR codes
- Some customers may feel less confident using phone technology

Online Publishing

In recent years, there has been a significant increase in online publishing (also referred to as e-publishing or digital publishing) includes the digital publication of e-books, digital magazines, and the development of digital libraries and catalogues. These growing trends highlight the growing popularity of digital readers compare to traditional books and magazine.

Advantages of a hard copy circulation:

- It does not rely on the reader having access to tablet computer or internet connection.
- The magazine can be displayed in places where the target market are likely to buy it.
- Consumers are more prepared to pay for a physical copy of a magazine rather than digital content.
- Hard copy items are less likely to be copied and distributed online.

Advantages of digital circulation:

- Increase magazine distribution on a global scale
- Deliver content across multiple platforms and devices
- Lower production and on-going publishing costs
- Open new sustainable revenue channels through advertising and e-commerce
- Instantly direct potential customers and traffic to your content

Advertising Space

Many publishers sell advertising space on many pages of their magazine to improve profits. The same advertisements also appear on the online edition. The advantages of this are:

- Magazine will appear larger and better value for money because of the number of pages with advertisements.
- The magazine can layout articles that may relate to particular advertisements.

Remote working in the Publishing Industry

Many magazine are based within a certain country however it is common for features and articles to be written in countries around the world. The advantages of this approach are:

- The magazine will appeal to a broader range of people as it will have contributions from different countries and cultures.
- The publisher can recruit journalists from a wider global selection as they can work remotely.

Disadvantages of this approach are:

- The publisher may not have face to face contact with journalists and this might make it difficult to manage production.
- Journalists have to email articles to publisher - files may be too large to email easily.