# Graphs and Charts

Statistical information often means little when laid out in a simple list or table. The true meaning of the statistics can be brought out much more clearly by the use of the right graph type accompanied by the right graphic.

Knowing what type of graph to use for any given situation is a skill you should try to develop and a brief explanation is given here:

**Line Graphs are used to show how values change over a period of time.**
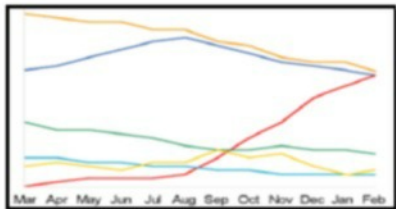
- The first example here describes six different values changing over the course of a year.

- The second example uses a graphic to enhance the graph. The graphic is relevant to the topic and therefore works well.

Pie Charts are used to show how values compare to some whole number.
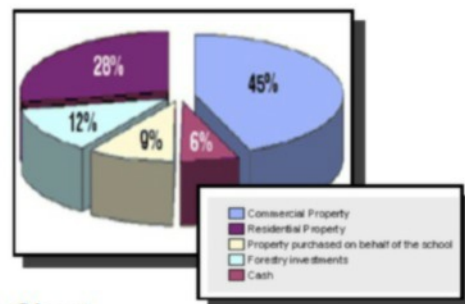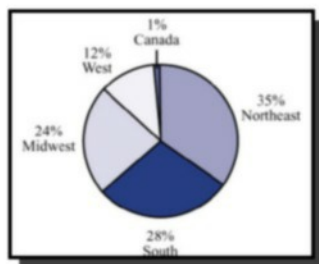
- The first example here shows a basic 2D Pie Chart.

- In the second, the Pie Chart is a bit more complex because it has been shown exploded.
- The third example is the clearest because it has been shown exploded and is 3D. This makes it the easiest to read.

**Bar Charts are used to show how values compare directly against other values.**
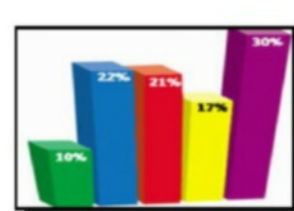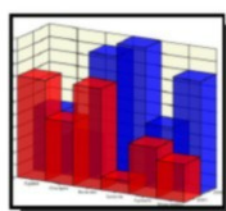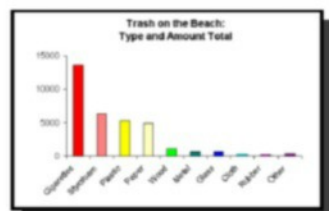
- The first example here shows how a series of values compare with each other and uses a simple 2D layout.

- In the second, the graph is a bit more complex because it compares the five different values and shows them as 3D blocks of different colour
- The third example overlays one year's values against another as well as using a 3D coloured layout.

Colour Theory (The Language of Colour)

Introduction

Colour can play an important part in illustration and graphic design. It can help designers to create a certain mood or feeling. Every colour serves a purpose and are an important tool for any Graphic Designer.

The Colour Wheel
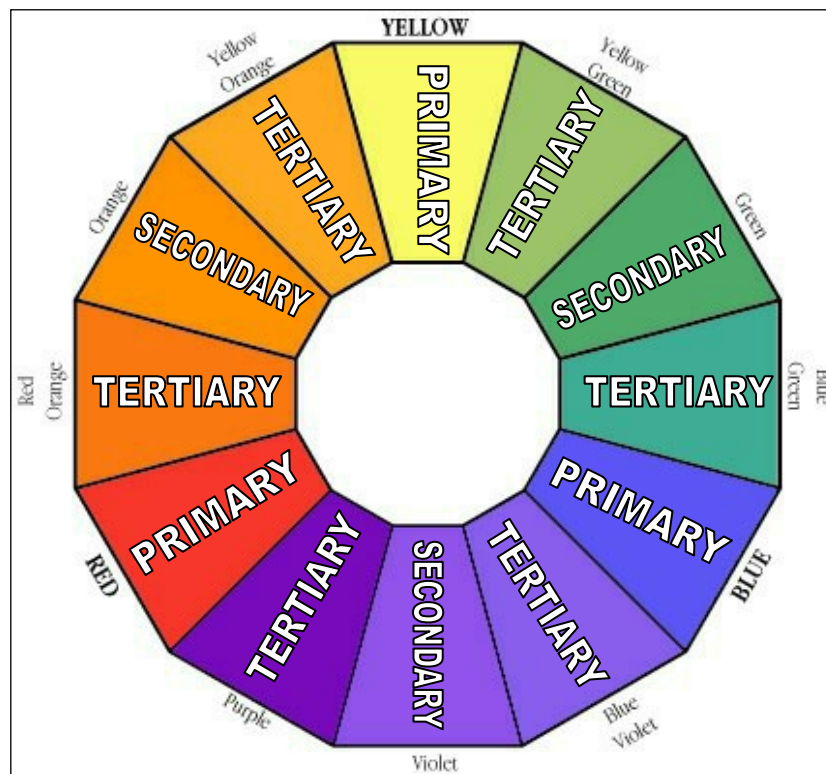
The colour wheel was designed as a way of showing how colours relate to one another. It consists of the 3 Primary colours, 3 Secondary colours and 6 Tertiary colours.

Primary Colours

The primary colours are **Blue**, **Red** and **Yellow**. When these colours are mixed together they can produce all of the other colours.

Secondary Colours

The secondary colours are **Violet**, **Orange** and **Green**. These are made up by mixing the Primary colours in equal quantities. (i.e. Blue + Yellow = Green)

Tertiary Colours

These colours are made by mixing a **Primary** and **Secondary** colour in equal quantities. (i.e. Red + Orange = Red-Orange).

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Warm Colours

Red, Yellow and Orange are warm colours because they give the feeling of heat. They are also known as **Advancing** colours because they appear to be coming out of the page towards the viewer. These colours are good to use as headings or for giving important information on your graphs or display drawings.

Cool Colours

Blue, Green and Violet are cool colours because the give a feeling of cold. They are also known as **Receding** colours because they appear to be further away on the page than other colours. These colours are good to use as backgrounds for your graphs or display drawings.

Harmony

Harmony is created when colours close to each other on the colour wheel are used together. Harmony is easy on the eye and creates a feeling of peace. i.e. Yellow and Orange together create a warm relaxing image.

Contrast

Contrast occurs when colours at the opposite side of the colour wheel are used together. Contrasting colours are bold and create an exciting mood/ feeling.

Contrasting colours are often described as **complimentary.**

i.e. Green and Red together creates a striking eye-catching design.

Tone

Tone is the term used to describe how strong or weak a colour is. It can range from a strong/dark tone to a weak/light tone. Tone is also used when rendering 3D objects to show depth, light and realism.

Strong   **Weak**
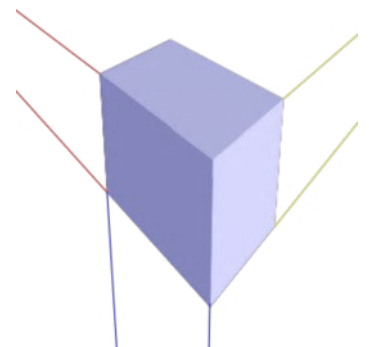
Tints and Shades

Tints and shades create greater colour options by adding White and Black to colours.

i.e. adding **White** to Blue gives a **TINT** of Blue.
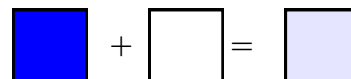
i.e. adding **Black** to Blue gives a **SHADE** of Blue.

Colour and Moods

Colours can be used to indicate different moods and feelings. Designers use this to create different atmospheres for their designs. Some examples of colours and the moods they create are shown below:

RED - Great power of attraction but too much can be tiring. It is said to be: HOT, BOLD, EXCITING, FESTIVE, PASSIONATE, POSITIVE.
It can also be associated with: LOVE, RAGE, AGGRESSION, DANGER, COURAGE, SPEED.

BLUE – More formal than red or yellow. It is said to be: COOL, SOPHISTICATED, ARISTOCRATIC, SERENE, PASSIVE, ELEGANT and RELIABLE.
Not used in food because of its association with mould.

GREEN- The most restful of all colours. It is said to be: FRESH, YOUTHFUL, COOL, SOOTHING, NATURAL AND INFORMAL.
It is associated with: NATURE, SAFETY, HEALTH and ENVIRONMENTAL CONCERN.

YELLOW – The most easily seen and brightest colour. It is said to be: BRIGHT, PLEASANT, HAPPY, SUNNY, LIVELY and CHEERFUL.
It is associated with: SUNSHINE and HOLIDAYS.

ORANGE – SUNNY, CHEERFUL, WARM AND HAPPY.
One of the appetite colours associated with flavour and energy.

PINK – The saying "to view the world through rose coloured glasses", accurately reflects its meaning. It can signify kindness, tenderness, sympathy and absence of all evil.

VIOLET- It is said to be COOL, NEGATIVE, RETIRING, SUBDUED and SOLEMN.
Associated with PEACEFULNESS and SOLITUDE.

PURPLE - Combines the COURAGE of red and NOBILITY of blue.
It is said to be RICH, POMPUS, IMPRESSIVE and REGAL.

WHITE - It is said to be: LUMINOUS, POSITIVE, LIGHT, DELICATE and CLEAN.
Associated with INNOCENCE and PURITY.

BLACK - It is said to be: SUBDUED, SOLEMN and PROFOUND.
Associated with: DEATH, SORROW and EVIL.

GREY – It is said to be: NEUTRAL, SEDATE, DIGNIFIED and INCONSPICOUS.
Associated with: OLD AGE.

BROWN - It is said to be SAFE, RELIABLE and NATURAL.
Associated with: EARTH and therefore GOOD.

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Colour communication and signs

There are many signs that we use to communicate through Graphics. This is important as we do not all speak the same language. Therefore having easy to understand symbols and signs makes it easy for all people to understand important information.

RED CIRCLE AND WHITE BACKGROUND

STOP
Prohibition Signs
MEANING:
- You Must Not
- Do Not
- Stop

No Smoking

No Access to Unauthorised persons

Do not use mobile phones.

WHITE BORDER AND BLUE BACKGROUND

OBEY
Mandatory Signs
MEANING:
- You Must
- Carry out the action shown.

Wear Ear protection

Wear Safety harness

Wear High Visibility Clothing

BLACK BORDER AND YELLOW BACKGROUND

DANGER
Warning Signs
MEANING:
- Caution
- Risk of Danger
- Hazard Ahead

Radiation

Trip Hazards

Low Temperature
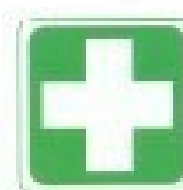
WHITE BORDER AND GREEN BACKGROUND

SAFETY
Safety and First Aid Signs
MEANING:
- The Safe way
- First Aid
- Emergency Directions

Drinking Water

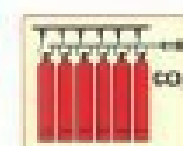First Aid

Emergency Exit

WHITE BORDER AND RED BACKGROUND

FIRE
Fire Signs
MEANING:
- Location of fire Equipment.
- Type of fire fighting equipment.

Fire Extinguisher

C02 Gas Cylinders

Fire Hose

Desk Top Publishing (DTP)

Desktop publishing is the process of designing magazines, newspapers, books, leaflets, booklets and reports using computer based publishing software. Designing the layout and structure of these is the responsibility of the graphic designer.

The industry tasked with creating theses documents is the publishing industry. Desktop publishing provides many benefits as follows:

Benefits to the graphic designer:
- Layouts can be created using grids and guidelines for speed of production.
- Images can be edited easily in terms of colour, size, cropping and shape.
- Work can be sent electronically to the client.
- Modifications can be made easily and quickly.
- All communication can be easily carried out via email.

Benefits to the graphics industry:
- Text and graphics can be imported easily from anywhere in the world.
- Time taken to produce work is greatly reduced.
- Ease of modification.
- Files can be sent electronically.
- Templates that the company use regularly can be created and saved.

Creating Page Layouts:

Before creating your page layouts it is important that you know about DTP layout features and design elements and principles.

You will need to know the following:

Copy/cut/paste	Flow text along a path
Text box	Bleed
Handles	Transparency
Colour fill	Drop Shadow
Margin	Rotate
Justification	Caption
Sub Heading	Header
Title/Heading	Grids
Paper Sizing	Guidelines
Extended text	Typefaces
Reverse	Page formatting
Cropping	Page Orientation
Column	DTP planning
Text wrap	
Gutter	

Typefaces
Refers to two main types of font you can use in a graphic layout:

Serifs: Formal fonts that create an elegant formal design for a publication. These fonts contain small flicks that make it easier for the reader to follow.

Serif text

San Serifs: Text without flicks that are informal and normally used in modern publications or web-page design.

San serif text

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DTP Features and Effects

Copy/Cut/Paste
Features that allow you to cut and/or copy images and paste them into pages within a document or a new document. Useful when using the same images or borders/layouts on different pages.
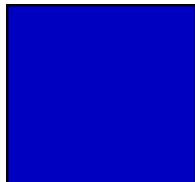
Text Box
Allows you type text into a publication.

Handles
Small boxes around a shape or feature that allow you to edit its size/proportion
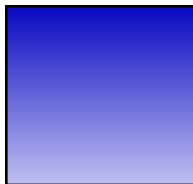

Colour Fill
Allows you to apply a solid Colour to an object

Colour Gradient
Allows you to apply a gradient fill to an object

Margin
The whitespace and borders around a page.

Tiltle/Heading
Heading or title on a page that introduces an article

Sub-Heading
Headings within the main article that introduce important information.
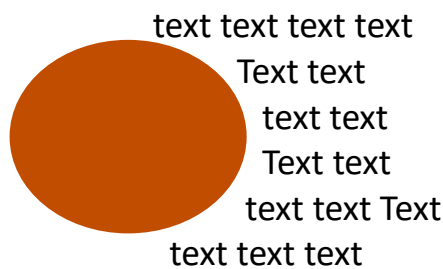
Extended text
Paragraphs of text that provide more information

Cropping
Trimming excess material from a photograph or image.

Text Wrap
When text follows the outline of a shape or image.

text text text text
Text text
text text
Text text
text text Text
text text text

Flow text along a path
When text follows a line or

Bleed
An extension of a graphic/image that that goes beyond the edge of a page

Transparency
Making fills or images partially see through.

Drop Shadow
A shadow created behind an object or text.

Rotate
Allows you to rotate images or text to any angle.

Justification
Allows you to align text to the left, centre, right or full width of a column or page.

Reverse
When the text colour is changed light to dark OR dark to light on a background creating contrast.

Column
The width of body text/text boxes. Think of newspaper columns. This makes it easier to read.

Caption
A brief description that accompanies an image

Header
Information that appears at the top of a page.

Footer
Information that appears at the bottom of a page.

Grid
Allows you to set a grid of lines or dots for accurate positioning and measurement on a page.

Guidelines
Help you to construct and layout a page for width of margins, gutters, columns etc.

DTP Features and Effects

Single and Multi-Page formats

DTP documents allow you to produce either single page formats (used for posters/flyers) and multi page formats (used for magazines/leaflets).

Single page format   Multi-page format
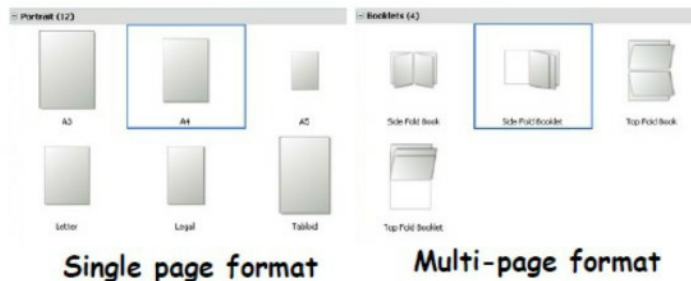
Page Sizing

Designs can be produced on a variety of paper sizes i.e. A0, A1, A2, A3, A4, A5, A6.

An A4 page is 210mm x 297mm

A3 size is two A4 pages side by side (420 x 297).
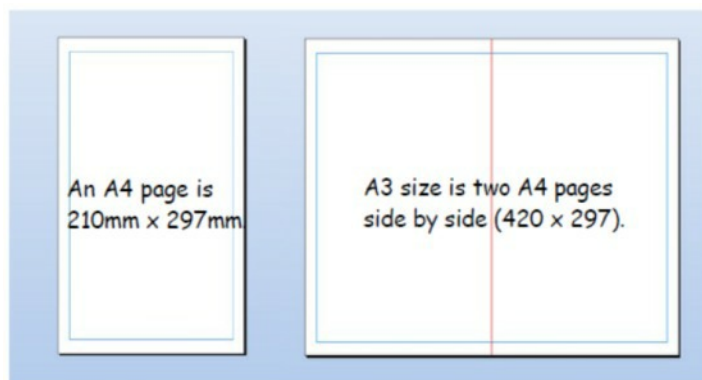
Page Orientation

This refers to the overall layout of a page. There are two types.

Portrait   Landscape
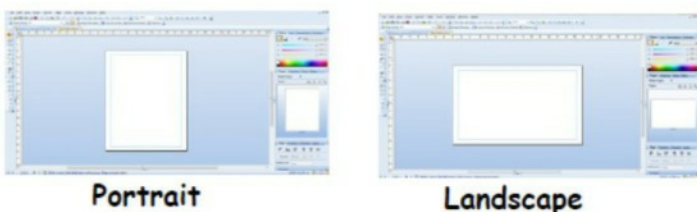
DTP Planning

Before producing any DTP work designers often produce initial sketched thumbnails, then working roughs and finally manually drawn accurate visuals.

Thumbnails: Quick sketches which outline proposed ideas for the layout of a DTP publication. They show colour schemes and some basic DTP features.
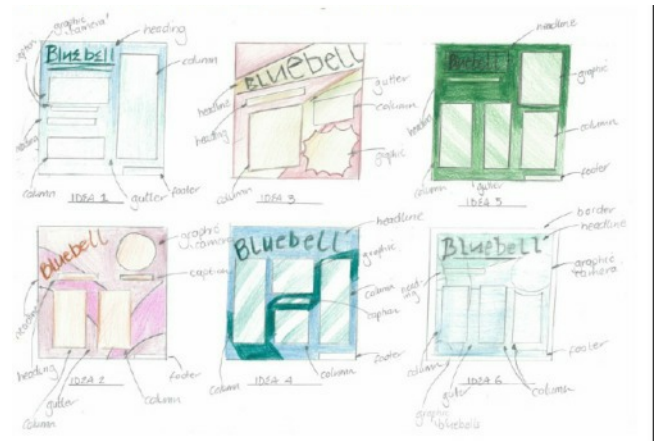
Working Roughs: A more accurately detailed sketch of the chosen design from the thumbnails. Colour and DTP features are more detailed and more likened to the final design.

Manual Visual: A fully drawn accurate visual of the final design. These are often measured out accurately on a drawing board and include exact DTP features and colour usage. They allow for production on a computer.

Example of annotated working rough sketch   Example of accurate visual drawing

Annotation: This takes the form of notes throughout each of the stages above. These notes detail information about design elements and principles, as well as dimensions and key features. ***44***

DTP features and effects in action

The following article shows several of the DTP features and effects discussed on the previous page. The page that follows this breaks down each of the features shown and outlines the effect it creates for the reader.

A   B   C   D   E

F

G

R

Q

H

I

P

J

O   N   M   L   K

GAMING NEWS

PS4 has new tech

SONY GIVES US THE LOW DOWN ON NEW TECH.

technology to be a big theme of IFA 2012, so the news that Sony is to make the PS4 4K compatible is welcome – even though many consumers won't make use of the technology for years after console.

But Sony made the activate the years after and in turn Sony hasn't have 4K-abi hasn't confir med the PS4 but if BGR's source is correct then Sony is looking to the long term with the PlayStation 4 and that can only be a good thing. **FUTURE TECHNOLOGY AGAIN**

Another Concept

4K is a reality in the highest of high end televisions and projectors at the moment and we are expecting the technology to be a big theme of IFA 2012, so the news that Sony is to make the PS4 4K compatible is welcome – even though many consumers won't make use of the technology for years after they buy the console.

But Sony has always been forward-thinking. It made the PS3 3D ready

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www.gamingzonw.com

September 2012

4K is a reality in the highest of high end televisions and projectors at the moment and we are expecting the technology to be a big theme of IFA 2012, so the news that Sony is to make the PS4 4K compatible is welcome – even though many consumers won't make use of the technology for years after they buy the console.

But Sony has always been forward-thinking. It made the PS3 3D ready but didn't activate the technology until a few years after the console hit shops, and in turn extended its life.

Sony hasn't confirmed the PS4 will have 4K-ability because, well, it hasn't confirmed the PS4 but if BGR's source is correct then Sony is looking to the long term with the PlayStation 4 and that can only be a good thing. **Future tech**

4K is a reality in the highest of high end televisions and projectors at the moment and we are expecting the technology to be a big theme of IFA 2012, so the news that Sony is to make the PS4 4K compatible is welcome – even though many consumers won't make use of the technology for years after they buy the console.

But Sony has always been forward-thinking. It made the PS3 3D ready

GAMING NEWS

DREAMS ARE AMAZING BUT
COULD THIS BE REAL

ou might expect the new PlayStation to be just another PlayStation. Think again. The PlayStation 4 or PlayStation Orbis as it is more commonly known is going to blow gamers away, literally. Sony is looking to the future with its upcoming PlayStation 4 console and is all set to give the device 4K resolution playback.

The PlayStation 4 isn't real, it's not confirmed, and Sony hasn't said a word about whether or not it's even working on anything PlayStation-related, but if the PS4 were ever to come to market, then it is more than likely to have 4K support (at least according to BGR, which is quoting an unnamed source). Given that the television industry is

that Sony and the like are already looking to next-gen picture formats to give profits a boost.

"The PlayStation 4 will blow gamers away, literally"

Given that the television industry is currently figuring out how to package 3D in a way that excites consumers and seemingly failing, it is understandable that Sony and the like are already looking to next-gen picture formats to give profits a boost. Given that the television industry is currently figuring out how to package 3D in a way that excites

Y

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September 2012

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Desk Top Publishing (DTP) in action

A: REVERSE. The colour of the body text is black. The colour of text in this sub-heading has been reversed and set on a darker colour fill. The reverse creates a colour contrast and gives the page visual interest.

B: HEADING. This second heading introduces a separate part of the article.

C: TILT & CROPPED IMAGE.
TILT: The picture is tilted a little to catch the readers attention and to create an informal modern feel that appeals to the youthful target market.
CROPPED IMAGE: The image has been cropped to fit on the page better producing a better lay-out.

D: CAPTION. Gives additional information about the photograph.

E: SUB-HEADING. Sub-Headings break up a large block of body text and create a visual rhythm on the page.

F: TEXT WRAP. The text wraps or flows around the cropped image. It brings an informal modern feel to the page.

G: FOOTER. The footer can contain a variety of information. It is not normally relevant to the article but to the publication itself.

H: PULL QUOTE. This is selected body text, enlarged and emboldened or coloured. It draws the reader into the article and is often a controversial or lively quote.

I: GUTTER (alley). This narrow space separates columns. It contributes white space to a layout and helps to de-clutter a page.

J: FOLIO (PAGE NUMBERS). Page numbers normally appear in the footer.

K: COLUMN: The body text is arranged in columns to restrict the width if the lines. It makes the text easier to read and helps create a visual structure that sets the tone of the page. Columns are often, but not always, the same width.

L: HANGING INDENT. The body text has been stepped in away from the text frame, creating more white space.
M: HANGING INDENT. The body text has been stepped away from the text frame, creating more white space.

N: HEADLINE. The headline introduces the article and usually appears at the top of the page. Bold fonts and tight tracking are used to create emphasis. The reverse text on a blue colour fill gives visual impact and helps draw the reader into the article.

O: HEADER: In this example a running header is shown, so called because it appears on every page in this section of the publication.

P: BLEED. The main picture bleeds off the page at the top and left edge. This creates a modern, informal feel to the page.

Q: COLOUR FILL. Text boxes can be filled with colour to create harmony or contrast. The two plain blue fills used here harmonise with the blues in the main picture and contrast with the reds used elsewhere.

R: COLUMN RULE. The column rule sharpens the lines on the page, giving the layout a more formal look. In this case it also separates the main article from the Sony new technology interview.

DTP Elements and Principles

Good Graphic design relies on the graphic designer knowing what makes a layout work. You need to understand elements and principles and be able to write about them in your exam and coursework.

Elements

Often regarded as the building blocks for any graphic design. These elements provide the foundation for layout and good design in your publication. Elements are listed as the following:

Line: Used to divide up a layout or connect other elements. They can vary in thickness and in colour. Underlining words can emphasise a point.

Shape: Creative use of shape can grab a readers attention. Shape can also help organise a layout. Shape can be organic, geometric or abstract.

Texture: *Physical* or *visual*. Physical can refer to the roughness or feel of the paper being used. Visual can refer to textures such as wet/water, metal, stone etc. from an image.

Size: The relationship of items can be emphasised by size. The most important features are often the biggest creating dominance. Text can also be used in this way, i.e. large headings.

Colour: *see colour theory also.* The most effective element on the page. Colour creates moods and excitement to engage the reader.

Value: Value deals with colour tones. Darker colours have more value and therefore stand out more to the reader.

Mass: All items on a page have mass. A bold heading has more mass than a small heading. Mass can catch the readers attention and allow the designer to ensure key features images stand out. This also works with images.

Principles

If elements are the building blocks, then principles are how we assemble the blocks. These are listed as follows:

Balance: Consider the symmetrical / asymmetrical layout of a page. Symmetry creates a formal page where as asymmetry can create an exciting informal and unusual page.

Contrast: Contrasting colour and shapes can be used to make items stand out and to create excitement.

Dominance: Items with greater emphasis stand out catching the readers eye and dominating the publication. Too much and other parts of a publication can seem lost.

Unity: Careful positioning of items and good use of colour can make items on a page feel unified. This makes it easier to follow and makes the whole page work as one item.

Alignment: Allows you to align text/graphics to the left, centre and right of a page ensuring that pages don't seem random.

White space: Leaving areas of a layout free from text or graphics draws the reader eyes to the areas containing text and graphics. It also allows the readers eyes to rest in busy layouts.

Rhythm: At times a designer may want a readers eye to flow through a page from beginning to end easily. this can be achieved through good use of shape, layout, balance, alignment and colour.

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DTP Elements and Principles in action

The following article shows several of the design elements and principles discussed on the previous page. The page that follows this breaks down each of the elements and principles shown here and the effect these create for the reader.

A

B

C

D

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DTP Elements and Principles in action

Outlined are the elements and principles shown on the poster from the previous page:

A: Visual Harmony: The geometric shapes and black on grey shades/tones make the image come together in a harmonising nature. In other words, they all work together.

B: Visual Unity: This is achieved through the use of blue in the headings and arrows that indicate the image being discussed. The reader sub consciously connects these parts through colour.

C: Contrast (tone/colour): This is applied through contrasting colours in the images that clash with the background making them stand out and catch your eye.

D: Visual Unity: The start of the article is emphasised by the white title heading which also contrasts with the black tones of the graphic.

E: Contrast (text): Different fonts and colours of fonts enhance the layout and create a difference between sub-headings and main body text.

F: Contrast Shapes and Layout: Most of the shapes here are geometric, however the close up curvature of the coil on the spring creates contrasting organic shape. The overlapping layout of the images also creates contrast to the rigid/formal text boxes.

G: Alignment: this is crucial in this sharp clean layout. The photographs are also aligned right and left to ensure a sharp visual display that catches the consumers eye. Text is all aligned accordingly to ensure it is easily read and well laid out.

H: Use of Line: this emphasises the clean vertical lines in the layout and alignments whilst further emphasising the use of grey shades and tones.

I: White Space: Remember this doesn't have to be white. The large expanse of black background focuses the eye on the other elements of the layout making them stand out and catch the consumers eye.

J: Rhythm and flow: This is created using the blue titles throughout the graphic along with geometric text blocks and shades of grey/black throughout. This makes the image work as a whole and attracts the consumers attention.