

Aesthetics

Design and Manufacture

Learner notes

Introduction

Aesthetics is concerned with the way an object affects our senses, particularly in visual terms. Once a design has been completed people will want to appraise or criticise it. They may comment on how well it works but their initial reactions will probably be based on its aesthetic qualities.

Aesthetics takes into account a whole range of factors, such as:

- line
- shape
- form
- proportion
- contrast
- harmony
- pattern
- texture
- material
- colour
- light.

Certain shapes, particularly those based on the human body, can affect us in certain ways. This is because these shapes often relate to our most primitive feelings. Likewise, colours can affect us: red and orange will make us feel hot, while blue and green will make us feel cool.

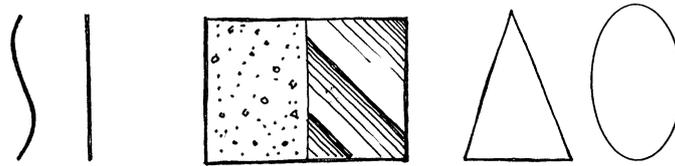
It has been shown by experimentation that a red room will tend to raise the blood pressure of the people in it while a green room will lower it.

As shapes and colour can affect the way we feel about an object, all the other factors will have their own influence. The combined effect of all these influences enables us to make some form of judgment. This judgment is in no way final. Aesthetics, like beauty, can often be in the eye of the beholder.

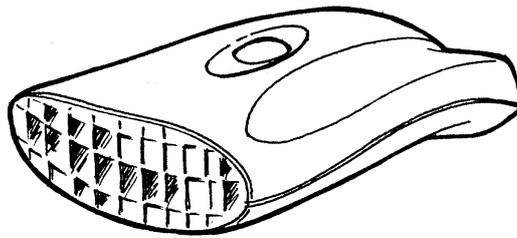
Let us now look at some aesthetic factors in greater detail.

Contrast and harmony

The most dynamic of visual techniques is contrast, where different parts of a design can be compared or differences made clear. Contrast can be made using shape, size, colour, texture, pattern etc.



Conversely, the above elements can be used to unite parts of a design to create a harmonious design. The drawing below shows a bike light. The oval shapes used for the lens and switch combined with the overall flowing shape give the design a harmonious look.



Line

Different types of line create different effects. A horizontal line is associated with passive or stable feelings, whilst a zig-zag suggests excitement. A vertical line on a horizontal line can dominate the horizontal line by stopping our horizontal eye movement.

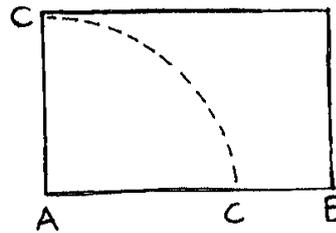


Proportion

Proportion concerns the relationship of one size or area to another. Proportion can be used to balance, contrast or highlight different areas of a design.

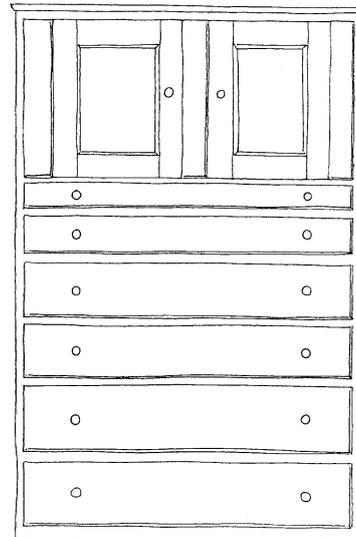
The 'golden section' is said to be the ideal proportion in which, when a line is divided into two parts, the total length of the line divided by the larger part is equal to the larger part divided by the smaller. This gives the equation:

$$\frac{AC}{AB} = \frac{BC}{AC} \text{ or } 1:1.618$$

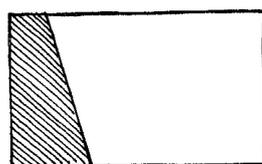


The golden section is roughly when the short side of a rectangle is one third shorter than the long side, this division can often be seen in paintings and photographs.

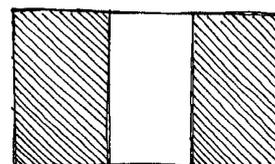
The drawing to the right is a chest of drawers designed by the Shaker people of America in the 1800s. The drawers get larger towards the bottom and this makes the design visually stable, as it looks heavier at the base. It also encourages you to put larger/heavier objects at the bottom of the unit.



In an asymmetric composition, such as the one shown on the left below, the large difference between the sizes of the two surfaces creates a contrasting effect where one area is highlighted against another. This can give a design a dynamic look.



ASYMETRIC

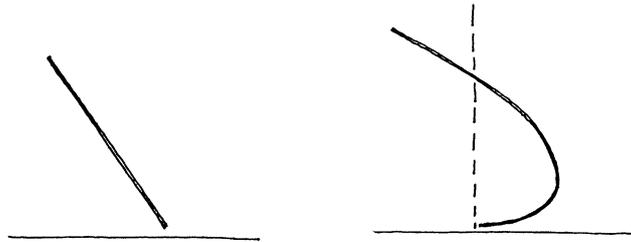


SYMMETRICAL

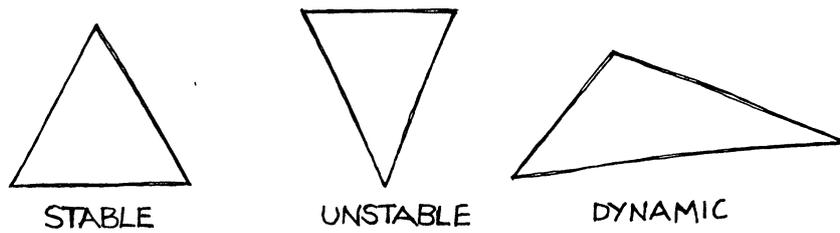
The balanced or symmetrical composition shown on the right gives an impression of stability and order.

Balance and movement

Horizontal and vertical lines together introduce the idea of balance, whereas sloping lines can look disturbing unless a support of some kind is provided. Changing a slope to a curve as shown below implies balance on a vertical line.



The way we position and alter shapes can also affect their balance and movement, as shown below.



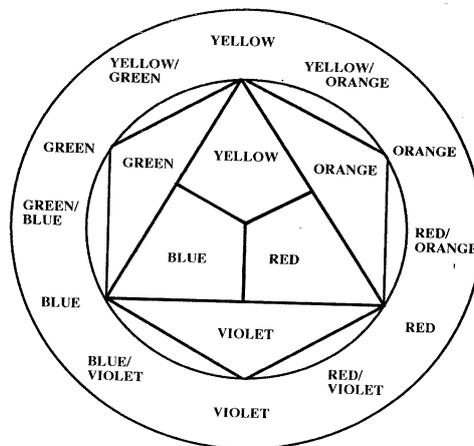
The streamlined look of the bike helmet shown below makes it appear very dynamic.



Colour

Colour is an integral part of the design process. Unfortunately, it is often neglected and left to the very end of a project. There is a lot of psychology involved when selecting colours as people react to them in different ways eg red suggests danger whilst blue evokes passive feelings. The combination of black and yellow also suggests danger and is often used in warning signs. This colour scheme is also used in the animal kingdom by bees and wasps to warn others to stay away. Colour can affect the look and feel of a product, thus making us react to it in different ways. How many times have you chosen something on the basis of its colour?

A good sense of colour will not appear overnight but has to be developed over a long time by observation of the world around you. A good place to start is the colour wheel. The colour wheel shown below was designed by Johannes Itten, who was a member of the famous Bauhaus School of Design. To start with he placed the primary colours red, yellow and blue in the centre and then the secondary colours green, orange and violet outside them. The wheel itself shows the primary, secondary and tertiary colours. The tertiary colours are mixtures of a primary and a secondary colour.



Colour relationships are very important in all aspects of design. Our response to any particular sensation can nearly always be increased by using contrast. For example, a sweet taste is made sweeter by contrasting it with a sour taste. A loud noise always appears louder if it comes after a period of silence. In the same way a colour can be enhanced by placing a contrasting colour next to it.

Complementary colours are those which appear opposite each other on the colour wheel, eg red/green, yellow/violet, blue/orange. These provide the most vibrant contrasts when placed next to each other, especially when used in equal quantities, and can often create an unsettling effect. However, if you

were to use a large proportion of one colour in a design and a very small amount of its complementary colour the effect would be to enhance the dominant colour without creating a garish colour scheme. Examples of this could be a yellow torch with a violet switch or a red car with green body trim.

Another way of emphasising a colour by contrasting it with its complementary would be to subdue the complementary colour by adding white to it, thus making it pale. This technique is often used when choosing a background for a rendering.

Case studies

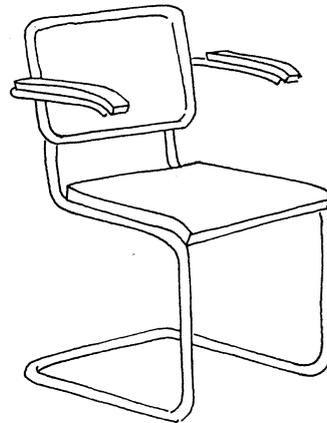
The following case studies look at the different roles aesthetics play in design.

Form follows function

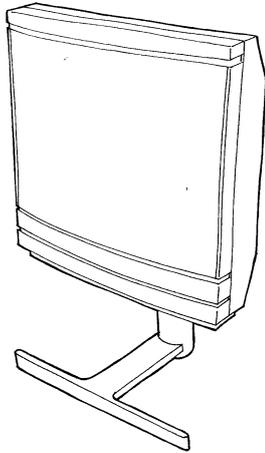
This expression originated at the Bauhaus School of Design in Germany during the 1920s. The Bauhaus School worked on the principle that decoration and ornament were superfluous to real design and that the form (or final appearance) should be derived from the function.

This picture shows the Cesca chair designed by Marcell Breuer in 1928. The chair consists of a tubular steel frame on to which a woven cane seat and back have been added.

Although the design is very simple and functional, it is still very popular 60 years later. The main feature of the chair is the cantilever design, which gives it its inherent springiness and is also responsible for the design's simplicity (one piece of tubing and no joints). The cantilever design also gives the chair a balanced look as the tubing at the base curves round under the back, implying support.



Less is more

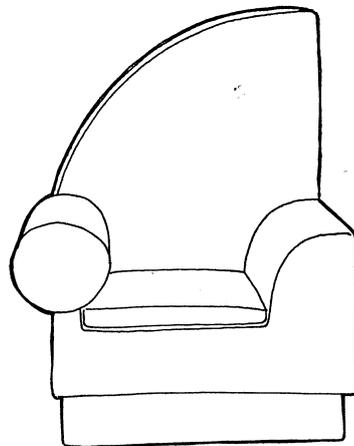


This style became very popular in the 1970s and was characterised by electrical goods manufacturers such as Braun and Bang and Olfsen. Details were kept to a minimum and neutral colours such as black, white and silver were used. Switches, buttons and displays were either hidden or designed in such a way that they blended into the overall form. Contrast may have been used to separate different areas, for example black and silver or a smooth and rough texture. This approach allowed the designer to concentrate on the overall form of the product, seeing it as a whole rather than a sum of parts.

Less is a bore

This style is typified by the Memphis group of designers, who deliberately set out to shock people with their outrageous designs. The Memphis style originated in Milan in the 1980s, where a number of designers decided to spice up the world of design with the philosophy 'anything goes'.

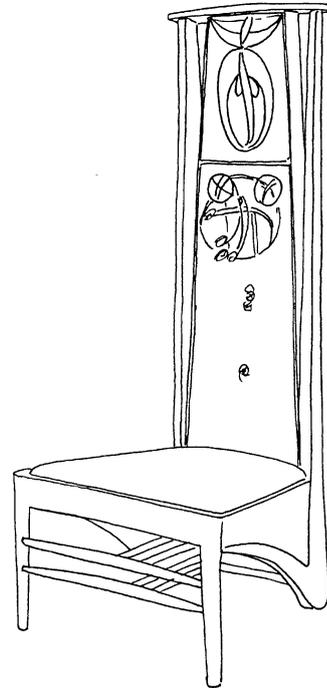
This picture shows the bell air armchair designed in 1982 by Peter Shire. The designer has used cylindrical or semi-cylindrical forms to create an asymmetric design. The unusual overall form combined with the bright pink, yellow and blue colour scheme creates a striking design.



Charles Rennie Mackintosh: biomorphic design

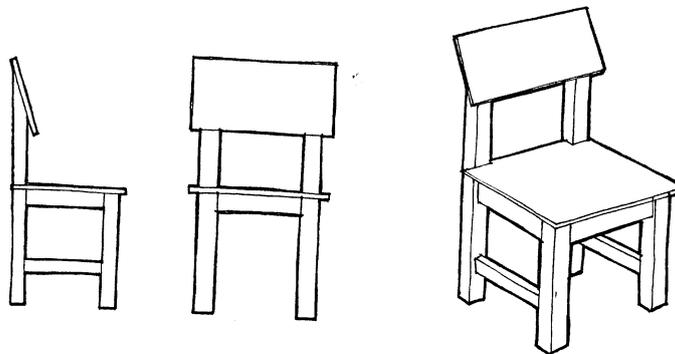
Like many of his contemporaries at the turn of the century, Mackintosh based his designs on natural forms. Because we grow up with nature we find it easy to relate to forms that are based on it.

The chair shown was designed by Mackintosh in 1902 and is typical of the Art Nouveau style. The headrest and back feature motifs based on flowers such as roses and these have either been screen printed or carved. Elsewhere, most of the lines on the chair are slender curves that flow into one another. This gives a very soft, organic feel to the design, which suggests a connection with nature.



Short tasks

1. The company which manufactures the chair shown below would like increase their product range with designs that will appeal to different tastes. Each design should incorporate the same basic structure and method of construction to keep costs low but differ in terms of shape, colour and detailing.



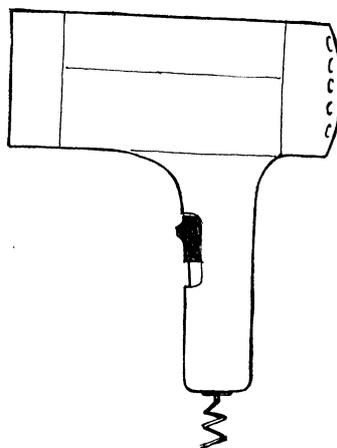
Produce three different designs, one for each of the following headings:

organic

Striking

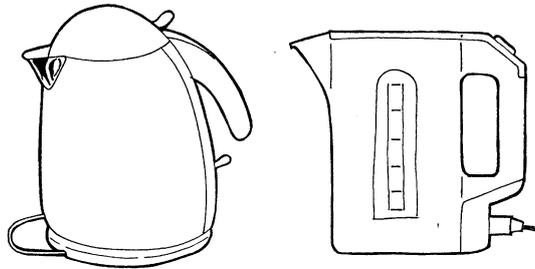
asymmetrical

2. Re-design the hairdryer shown below to give it a more 'dynamic' look.



3. Two kettles are shown below.

- (a) Write a paragraph comparing them in terms of aesthetics.
- (b) Decide which one appeals to you most and explain why.



4. A design for a drawer unit is shown below. Suggest how the proportions of the design could be altered in order to make it more pleasing to the eye. Use sketches to help explain your answer.

