Course Title: **Design Fundamentals**

Course Format: Web

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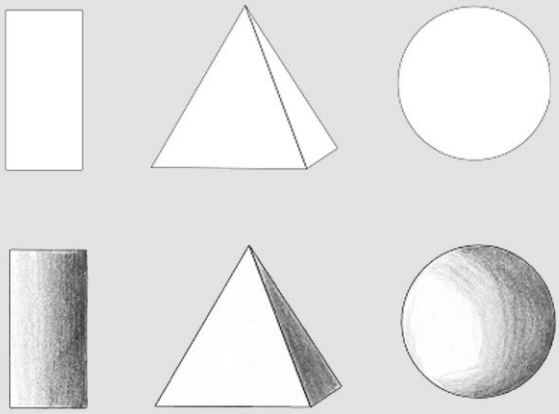
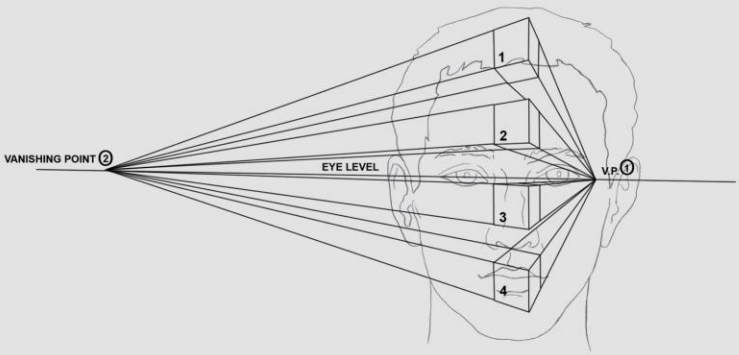
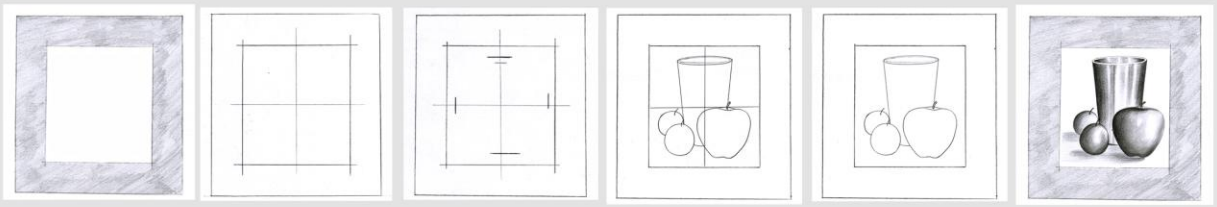
Detail Course content: Lecture Module wise







Introduction

Basic Design is a discipline of Design that applies the principles of visual language for better analysis and understanding of design solution, colour theory, compositions, and definition of various elements of design such as form, shape, line, point and their semantic use. A multi-disciplinary domain, Design consists of art, architecture and new media technology, and demands clear understanding of design fundamentals. Apart from the thorough knowledge of core concepts, also required is the representation of particular concept visually in terms of drawing and rendering through perspective to make it effective or functional.

The need for unambiguous visual design for efficient communication distinguishes expressive drawing of the visual art from the technical drawing learned in engineering. Artistic drawings are subjectively interpreted, their meanings multiply determined. For artistic skills and aesthetic sense, one must clearly understand the use of basic design elements and their applications for a particular design solution.

For a designer to communicate more concisely and in a visually appealing manner, it is necessary to use commonly understood formula (principles), perspective and design layout standards. Together, these conventions constitute a visual language, and help to ensure that the drawing is clear and relatively easy to understand.

All designs have certain basics elements or building blocks chosen to convey the message beyond the actual words or images used (semantically). The six elements such as points, lines, shapes, form, texture, and colour are the fundamental alphabets of design for desktop users. Other terms which you might hear described as elements of design are form, space, value and saturation (as in lightness or darkness of colour).

For our classes we'll expand on the definitions of lines, shapes, form, texture and colour and focus primarily on learning to recognize these fundamental design elements in our layout or composition. When we talk about a layout or composition, it is always important to know about how to make a layout framework, composition or a drawing; the question should come from within how to use. Practically speaking, after knowing the basics of" how to', to acquaint with the material presented here in, we should practice by doing practical studio work a lot in order to achieve a proper layout for a specific context. Therefore, this course focuses on practical manual on what we learn, rather than only theoretical inputs. This course structure distribution is conceived keeping that in mind. Thus the author concentrates on illustration based lectures in all the modules.

The web course is designed and dedicated to students of design, art and all those who wish to pursue the field for their own interest.

Module 1

Lecture- 1

Size, scale and overall proportion of form, Form and their structure, basic understanding of various shapes, inter-relationship of visual Forms.

(In this module we are going to discuss about forms and their size, scale , structure and relationship between them and their proportion by showing various illustrated examples for easy understanding of the subject matter, followed by specific context oriented hands on assignments in the class itself or students may be used to check this theory by taking photographs of any objects digitally and manipulate the same in computer to compare their size and scale with their surrounding objects, but the author encourages students to work manually).

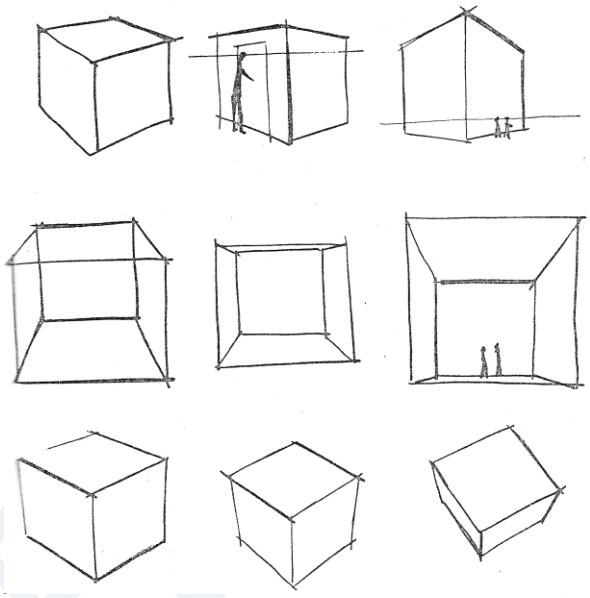


Fig.1: Scale and overall proportion

Scale and size:

Draw cubes of approximately the same size to represent small, medium and large objects (Fig. 1). Notice how the impression of smallness or bigness depends on convergence and eye level. Details can be added to enhance the impression. The size of the drawing is in direct proportion to the distance between the vanishing points. This exercise shows that if objects of varying size are to be represented in drawing of similar size the distance between the vanishing points must vary widely.

Forms and their proportion:

It is a very relative term that shows the proportion of an object along with its surroundings. For example, take an object as small as a fountain pen or as big as an aeroplane and make (some) drawings of it to see how you can change its appearance by varying view and scale. Refer Fig.2 as given below.

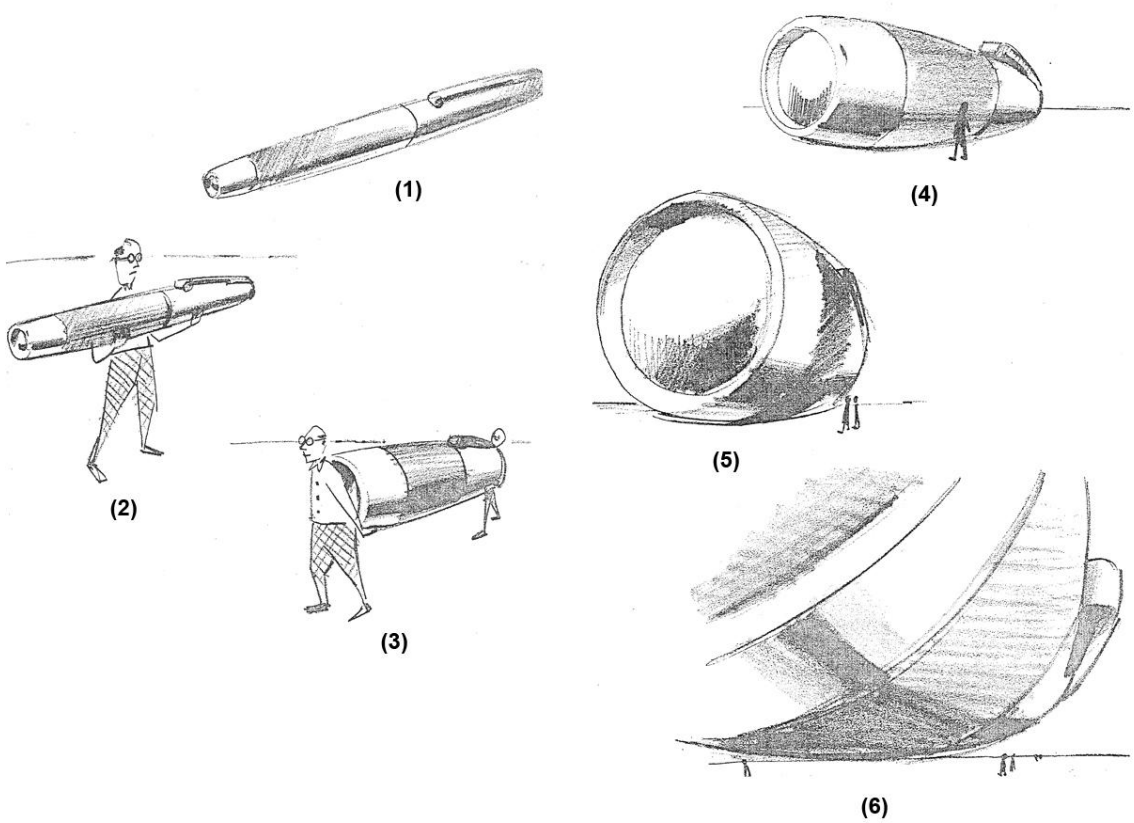


Fig.2: Scale size and proportion, a pen may be made to appear relatively huge.

All visual elements are constituted of what we call as "form". It is not just the shape that we see, but the shape of definite size, colour and texture which are the visual elements and also the properties of form. Form is positive element we place on any surface, environment, layout etc. as opposed to the negative elements we consider space. Form is the point, line, plane, and volume which are now no more as conceptual because they have been made visible. It is the shape and dots, texts, textures and images we use in a proper way to define a better layout of a design. Everything in our design is the form or space, positive or negative, figure or ground.

To start with forms, we first need to understand what is a form made of or what are the elements which come together to make up a form.

All forms are 3 dimensional. As we know it has length, breath and thickness or width. Although a form has volume other than point, line and plane, form exists in space, but human beings for their essentiality of communication of ideas, recording of experiences, conveyance of artistic visions has derived from 2-dimensional structure (shape) which consist of points, lines, and/or planes of a flat surface. Any spatial attributes especially as defined by outline is known as shape which is 2 dimensional (only Length and width), but our visual experiences of the 3-dimensional world influence our understanding and recognition of 2-dimensional shape. Shape is the spatial arrangement of something as distinct from its substance. Any shape against an empty background appears to be surrounded by a void or empty area. Volume and thickness can be added to a shape to give it the 3-dimensional structure (form) which can also be rotated in space to exhibit different views.

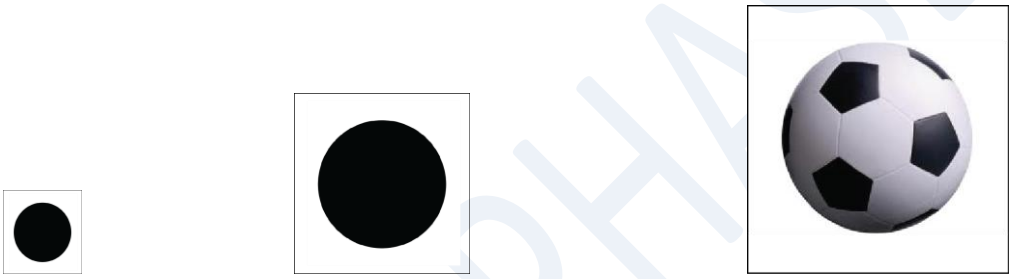
Lecture-2

Structure of forms:

Any form is basically built of points, lines, planes and volume and either they are positive or negative. Visible points, lines and planes are forms in the true sense; although forms as points or lines are still simply called points or lines in common practice.

Point as a form:

A form may be recognized as a point if it is small. The smallness here is completely relative as any form may appear huge as compared to any tiny frame may appear huge or they depending on the frame of reference but the same form may appear large when it is put into a much greater frame of reference. As an example shown below a point can be a football if we go closer to the point or in other words, if we zoom it, the point may appear as a football visually (Fig.3). The most common shape is that of a circle which has features like non-directional, non-angular, compact and simple. However, a point may also be a square, triangle, oval or even an irregular shape (Fig.4). Thus, the features of a point are: it should be comparatively small and its shape should be simple.



Point 1 point 2 point 3 (is actually a football)

Fig. 3: Point as a football

Fig.4: Various types of points depending on purpose.

Though mathmetically, a point dose not have dimensions, visually speaking,a point may have regular or irregular shapes.

Line as form:

Any form is said to be a line because of two reasons: first its breadth is extremely narrow and second its length is quiet visible and prominent. It generally portrays the feeling of thinness; however, this thinness is also relative to the comparison or frame of reference. Usually the ratio between the length and the breadth (of its extreme) is considered. As an example given in Fig.5 a line can be a wooden log when we go closer to the line and see. Line is a form of a wooden log. Fig.5

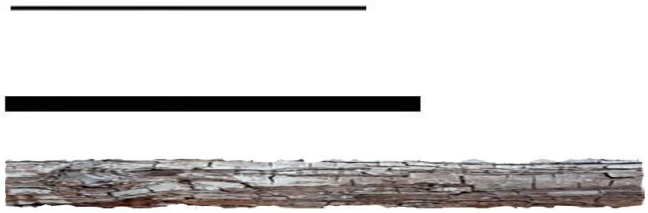


Fig. 5: A wooden log seen from a distance appears as a line.

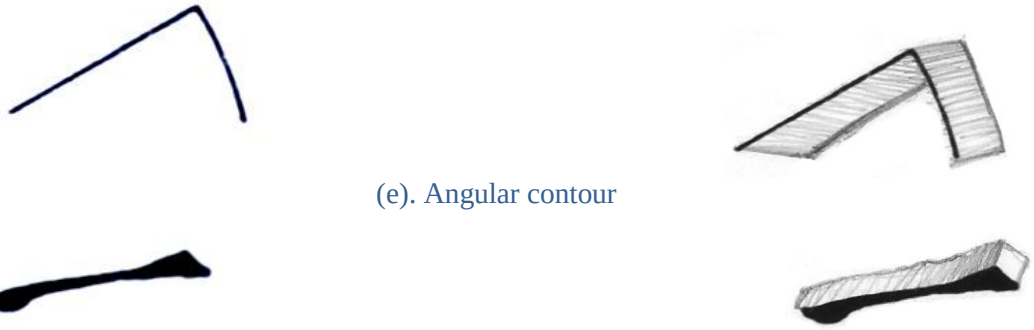
The line is one of the very important basic elements of deign The various shapes of form to understand the various structural characteristics are shown in (fig. 6) an angular line has its own dimension as form. Here by adding width to the 2 dimensional lines, how we perceive 3dimensional structure (form) of the line. Likewise showing the structures of various lines such as straight, curved, angular contour in order to understand the visual characteristics of 3 dimensional forms and its structure could be perceived from various lines. The thickness of the line also determines the volume of the structure as shown bellow.

(a). Angular

(b).Straight

(c).Curved

(d). Contour



(e). Angular contour

(f). Thick.

Fig. 6: Different structural forms and their representation as lines.

(There would be a class room assignment for further exploration of various structures of forms)

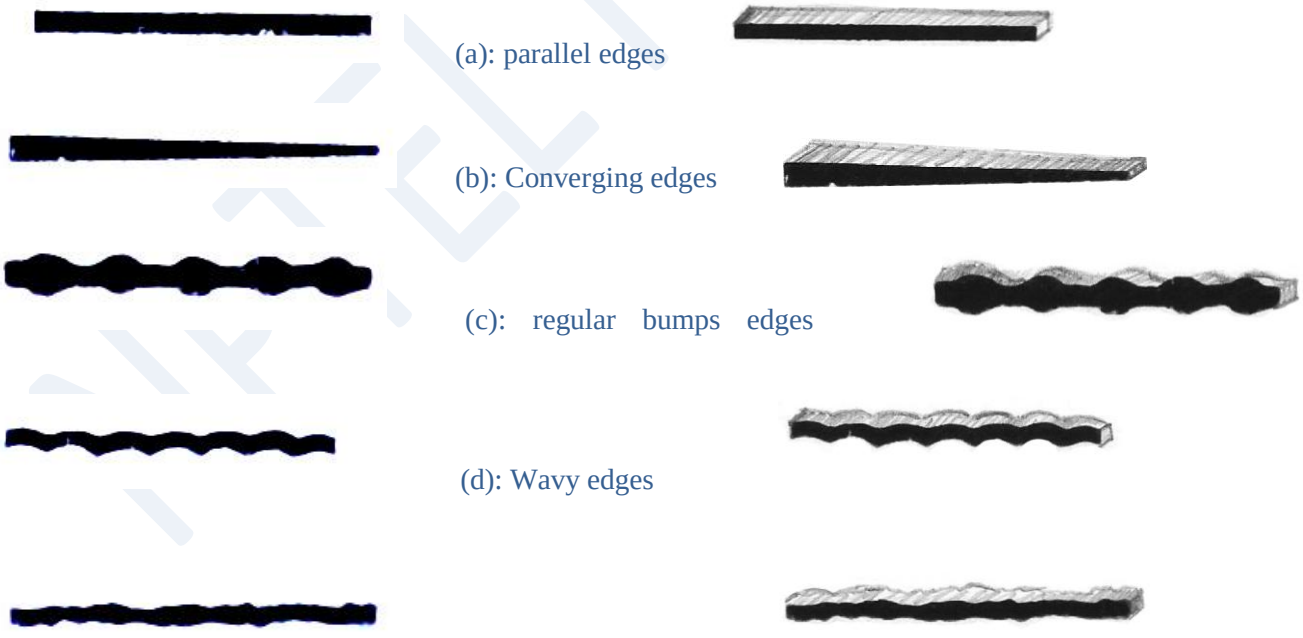
Further following three separate aspects should also be counted in a line.

The Overall Shape:

This is the general appearance of a line such as straight, curved, bent, kinked, angular etc.

The Body:

As a line has some amount of width its body is contained within two edges and the relationship between these two edges determines the shape of the body. Usually these two edges are smooth or parallel, but sometimes, they may appear converging, diverging or irregular as shown in Fig.7.



(a): parallel edges

(b): Converging edges

(c): regular bumps edges

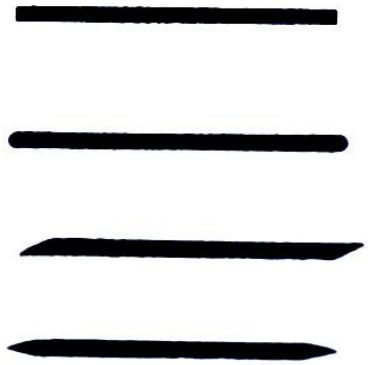
(d): Wavy edges

(e): Irregular rough edges.

Fig.7: Forms with regular and irregular edges and their representation as lines.

c) The extremities:

This feature is usually not considered when the line is very thin, but when the line is a thick structure or broad, then its extremities become visible. Here extremities mean the starting point and end point on the line as line itself is a combination of points in a row. (Fig.8).



(a): Parallel cut extremes.

(b): Rounded extremes.

(c): Angular/slant cut extremes.

(d): Pointed extremes.

Fig.8: Forms with regular and irregular extremities and their representation as lines.

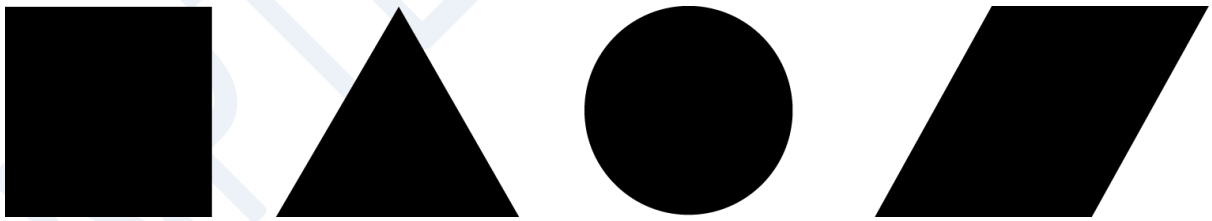
Lecture-3

Shape as Plane:

A 2-dimensional surface is called plane. A planar shape is bound by conceptual lines which constitute the edges of the shape. The characteristics of these conceptual lines and their inter-relationship determine the shape of the surface. These planar shapes have variety which may be classified as follows:

Geometric Shapes:

Shapes which are constructed mathematically are 'geometric'. For example, square, triangle, circle and rhombus are geometric shape. See the Figure below (Fig.9).



Square Triangle Circle Rhombus

Fig.9: Some Geometric Shapes

Organic Shapes:

Shapes which are bounded by free flow curves usually represent dynamism and growth. They are often found in nature and are known as organic form. Fig.10

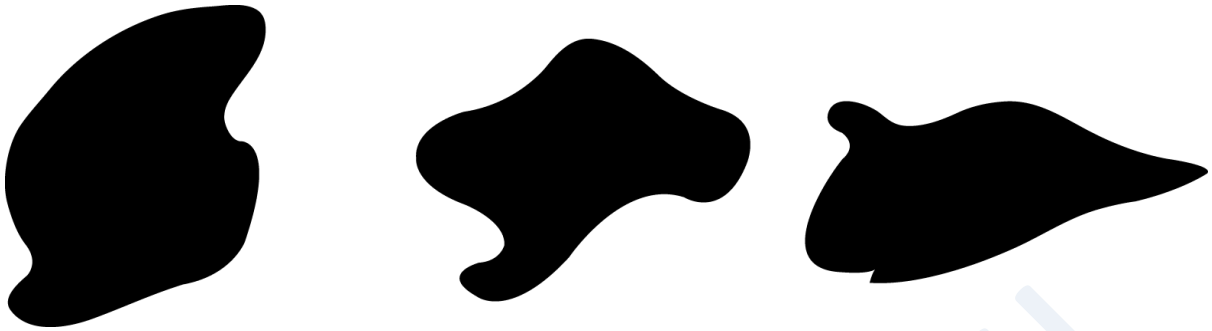


Fig.10: Some organic shapes

Rectilinear Shapes:

Shapes which are bounded by straight lines and connected to each other are called rectilinear shapes.Fig.11

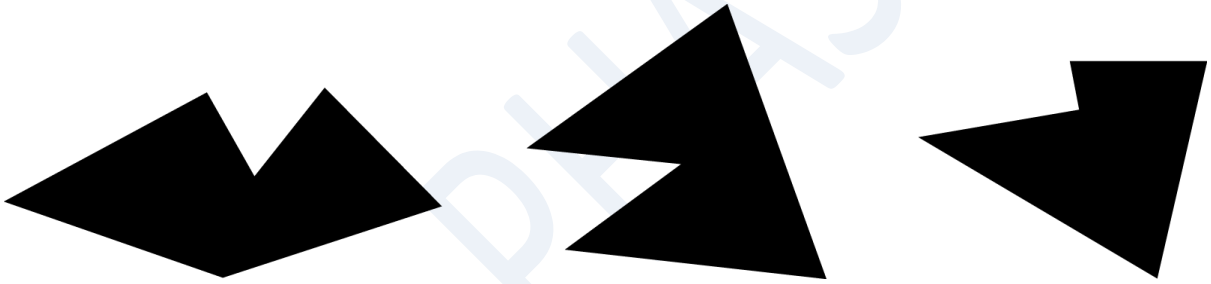


Fig.11: Some rectilinear Shapes

Irregular Shapes:

Shapes which are bounded by regular and irregular lines like straight and curved and are not constructed mathematically are called irregular shapes (Fig.12)

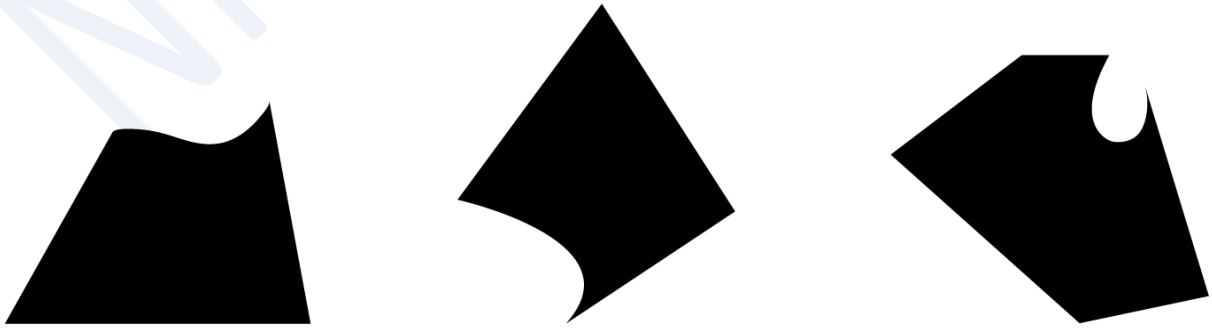


Fig.12: Some Irregular Shapes

Hand-drawn Shapes:

Shapes which are created with unaided hand or freehand to create various irregular uneven shapes are called hand-drawn shapes. (Fig.13)

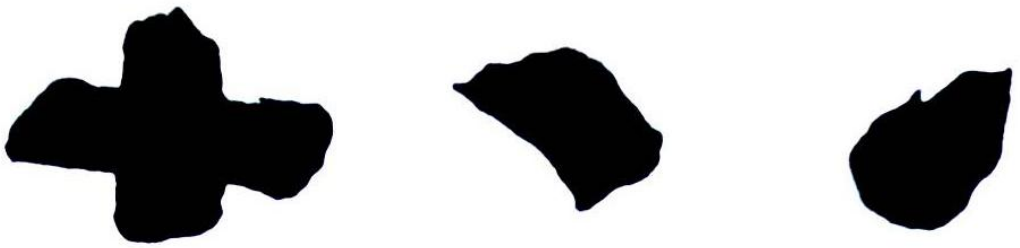


Fig.13: Some Hand-drawn Shapes

Accidental Shapes:

Shapes which are created by effect of special processes of materials or obtained non-intentionally or accidentally are termed accidental shapes.Fig.14.

Fig.14: Some Accidental Shapes

Form as volume:

Whenever we talk about volume we generally refer to a 3-dimensional form as it has length, height and thickness. A volume is a complete illusory experience and always demands a special spatial representation.

Lecture-4

Positive and negative space in a form:

Form is generally observed as occupying some space, but it can also be a blank space surrounded by a space. When we see a form occupying some space it is termed as a positive space in a form. When we see it like an empty space or blank it is considered to be a negative space in form. In any black and white combination, we tend to derive black as occupied and white as unoccupied. Thus, the black form is recognized as a positive, and white form is recognized as a negative form in space. But many times this understanding is not true. For example, when one form penetrates or intersects with another, what is positive and what is negative are no longer recognizable.

Positive or negative space is commonly referred to as the “figure” which is on a “ground”. Here ground denotes the area surrounding the form or the “figure”. In few cases this figure-ground relationship is reversible and may take various combinations for viewer to understand (Fig.15).

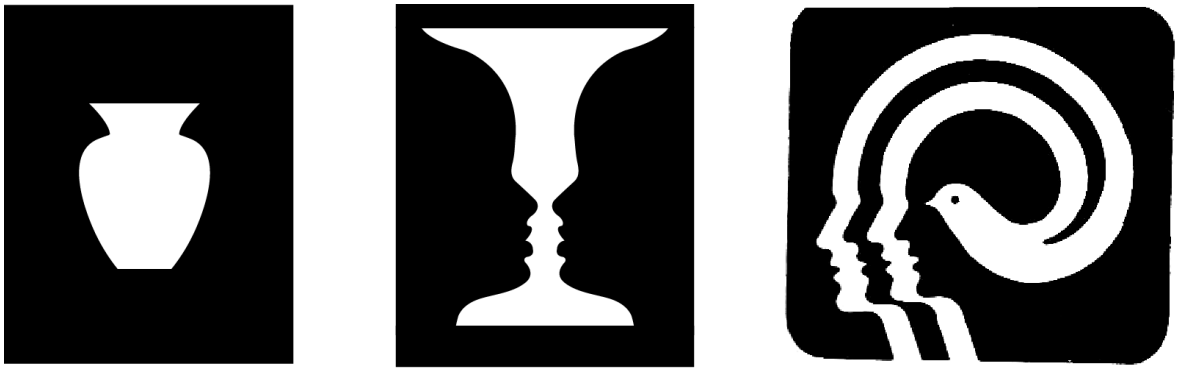


Fig 15: Figure and ground relationships.

The figure/ground reversals create a meaningful "surprise" in the viewer's eye. See the fig.15 above, in the first image you see the positive space or figure (white) as a vase which does not have any surprising elements but, in the second image the positive space or figure is a chalice where as negative space or ground (black) denotes two frontal faces looking at each other and in the third image as you can see four faces in both as figure and ground and the image of a bird comes out as figure. Many of the best logos designed use figure/ground reversal to their advantage.

Form is a 3-dimensional element. It has length, breath and thickness. But shape is 2 dimensional; it has only length and breath. Form exits in space where as shape always exists in area. This aspect of form shape relation is often misunderstood. See Fig.16 below, where you see the connection between form with space and shape with area. The shape of the glass exists in area and the form of the glass exists in space.

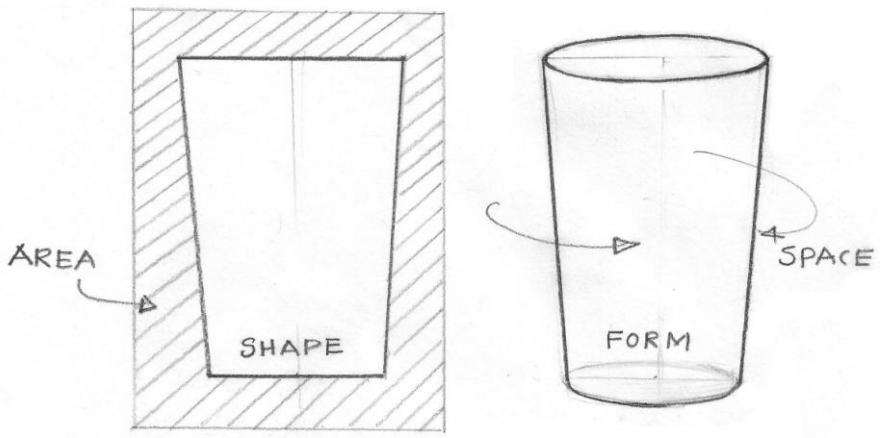


Fig.16: Relationships between shapes and areas and between forms and spaces (volumes)

Types of form:

Shapes or Visual Forms can be classified according to their particular contents.

Representational Form:

Any form that contains a recognizable subject and represents it is called representational form.

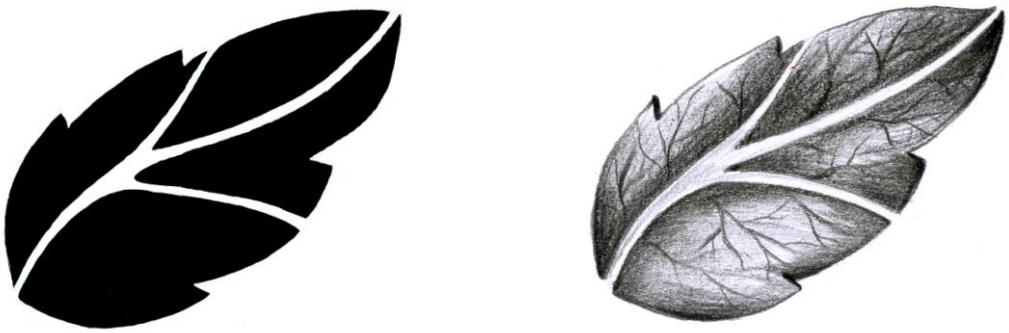


Fig.17: Representational forms resemble real objects.

Non-representational Form:

If a form cannot be recognized partially (semi abstract) but to some extent it is vivid to understand is considered to be a non-representational form or semi abstract form. Such forms cannot suggest proper volume of the object and space in particular (Fig.18).

Fig.18: Non-representational forms are semi abstract forms.

Natural Forms:

Representational forms can be further divided into sub classes of natural forms where the form replicates some subject found in nature. Natural forms include living organisms and any inanimate objects (Fig.19).

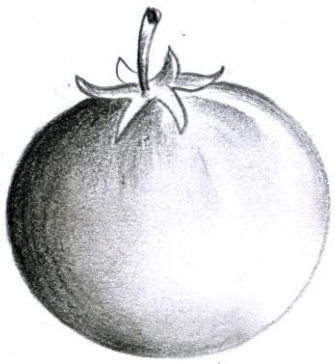


Fig.19: Natural Forms

Human-made forms:

Again representational forms are classified into man-made forms. These forms are derived from objects and environments created by man. They can be buildings, furniture, machines, tools, household products, toys, apparels, stationery etc as shown in Fig.20.

Fig.20: Human–made Form

Type font as form:

The written language consists of characters, letters, words, numerals which make visual communication affective. A form based on the elements of written language through various fonts is called font form.Fig.21 this kind of forms usually used for corporate identity, logo design or for big company signage in 3D.

Fig.21: a typical font Form

Abstract forms:

Unrecognizable structures of forms are termed as abstract forms. After much transformation the form becomes an element which does not relate to any recognisable element. In other words, it becomes ambiguous. Basically this kind of form expresses a designer's sensitivity to shape, colour, and composition without relying on any recognizable element (Fig.22). This kind of form is some time very ambiguous in nature thus it is abstract. Usually the sculptors use this abstract form for their unique creativity to make their concept appropriate. Also see fig. 18 for clear understanding of non representational and abstract form.

Fig.22: A Typical Abstract Form

Lecture-5

The inter-relationship of forms:

Forms can be found in various combinations and the ways in which they encounter each other are also numerous. When we take two circles to demonstrate the effects produced we find many different kinds of interrelationships. Below is an example of a circle Fig.23. Seen from above, a circle may represent a hole, a disk, a hemisphere, a sphere, and a cylinder.

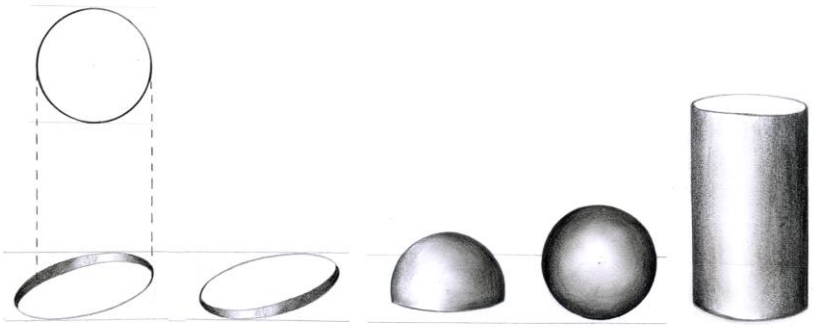
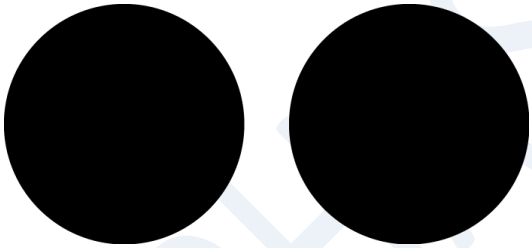


Fig.23: Different visual appearances of a circle.

Detachment:

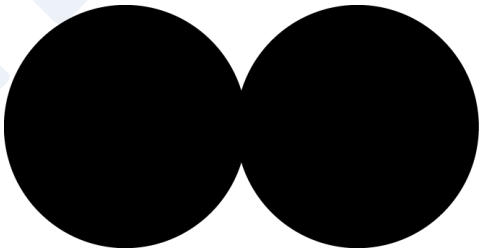
The two forms remain separate from each other by space (less or more) is known as detachment. Where each form is visually distinct.



(a) : Detachment

Touching:

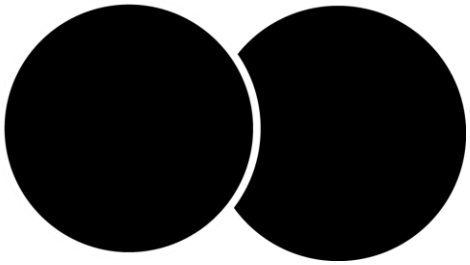
If we now move the two forms closer, they begin to touch each other. The space between the two forms which earlier was trying to separate the two forms is now being disappeared.



(b): Touching or attached

Overlapping (opacity):

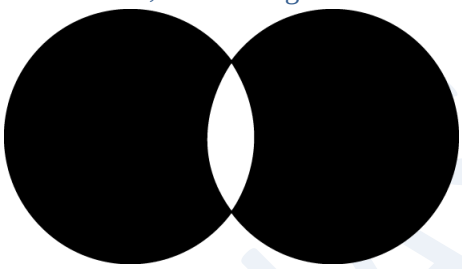
If we now move the two forms still closer the forms cross over each other and tend to remain one above the other and hence covering one portion of the form which is beneath it.



(c) : Overlapping

Interpenetration (transparency):

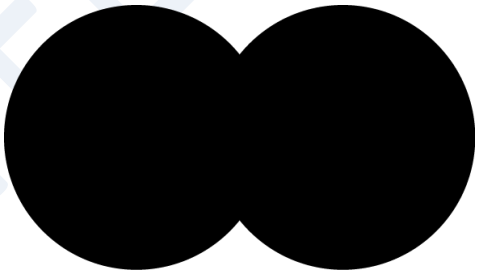
This is similar to above but, both the forms here appear see-through or transparent. Here there is no overlapping or above-beneath relationship here between them, and the edges of both the forms remain visible.



(d) : Interpenetration

Union:

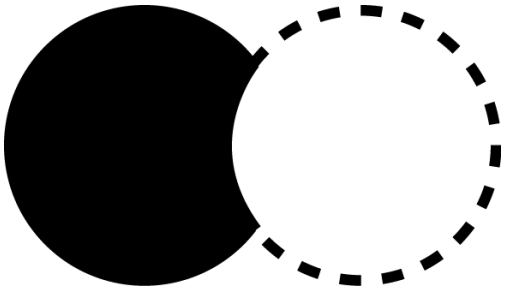
This is similar to overlapping but here the two forms are combined to become one larger form. Both the forms lose a part each from their body when they are in union.



(e) : Union

Subtraction:

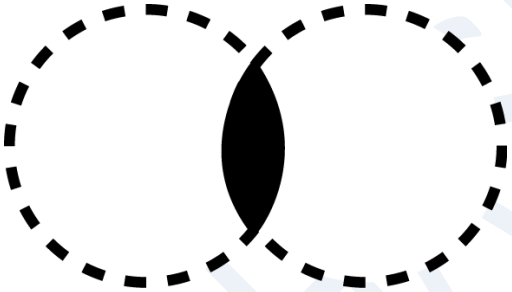
When two forms where both visible, but one positive (black/ visible) and other is Negative (white/invisible) , they cross over each other, the negative (white/ invisible) form crosses over the positive (black/visible) form, a portion of the positive (black/visible) form is covered by the Negative (white/invisible) and this portion of the form also become white or invisible. Such is termed as subtraction.



(f) : Subtraction

Intersection:

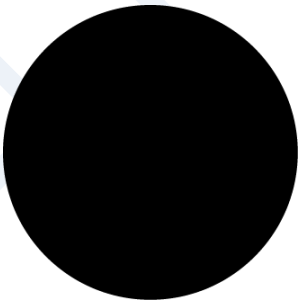
This is same as interpenetration but here the portion where the two forms cross over each other is visible. A new smaller form is generated as a result of the intersection. It is easy to confuse it with the state of the original forms.



(g) : Intersection

Coinciding:

If we move the two forms even closer, they coincide and the two forms become one circle.



(h) : Coinciding

Fig.24: Inter-relationship of Forms

Question & Answer

Module1

1. What is visual Proportion? How you relate it with size and scale. Briefly explain with proper illustration.
    - See lecture 1 for size, scale and proportion.
2. Write definition of point and line, give illustration explanation.
    - See lecture 2 for explanation.
3. Line may relate to form. Show various lines and its formal structure.
    - See lecture 2 structure of form and try to illustrate as shown in the lesson.
4. What do you mean by shape? What is the difference between shape and form and it relates to space and area.
    - See the Positive and negative space in lecture 4
5. Explain briefly about inter relation of form.
    - See lecture 5 and try to show this by illustrations as shown in lecture five.

Module 2

Lecture-1

Understanding basic principles of perception including depth and its representation.

Initially let us take the reference of Gestalt law in order to have an understanding of the basic principles of visual perception. Gestalt is the German word for "form," and it is applied in Gestalt psychology. It means "unified whole" or “configuration." The essential idea of gestalt is that in perception the whole is different from the sum of its parts. Gestalt psychologists developed six laws that govern human perception:

These are the laws:

1. Proximity.
2. Good Continuation.
3. Closure.
4. Good form.
5. Figure/Ground.

In graphic design, it is very important to know gestalt theory because it allows us to predict how viewers respond to design. It does not only assure that our intention will be understood correctly by the viewers, but it also helps us to create a dynamic design.

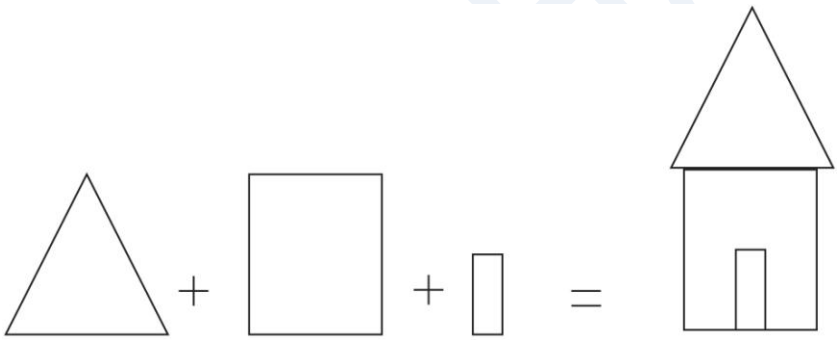


Fig.25 The whole is different from the sum of the parts

Law of Proximity:

Elements that are closer together will be perceived as a coherent object. We see the first image in horizontal orientation because horizontal circles are closer than the vertical ones and in the second image we see the circles in a vertical orientation because vertical circles are closer to each other than the horizontal circles.

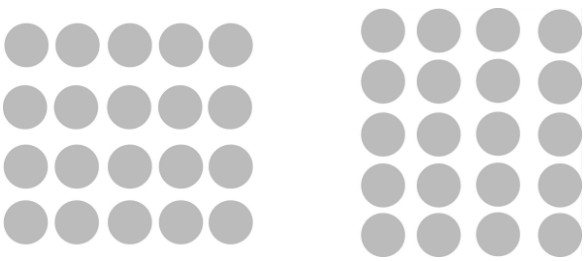


Fig.26: Law of Proximity: circles that are closer are grouped together into a unit.

Law of Similarity:

Elements that look similar will be perceived as part of the same form. In the image below our eyes perceive the squares and circles separately because they look similar so we perceive them as part of the same form.

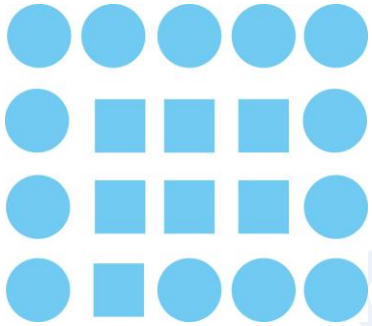


Fig.27: Law of Similarity: shapes that are similar are grouped together into a unit.

Law of Good Continuation:

Humans tend to continue contours whenever the elements of the pattern establish an implied direction.

Fig.28: Law of Good Continuation: the eye follows the circles and perceives a curve

Law of Closure:

Humans tend to enclose a space by completing a contour and ignoring gaps in the figure. In the image below (Fig.29) we tend to enclose the empty space and visualize it as a triangle.

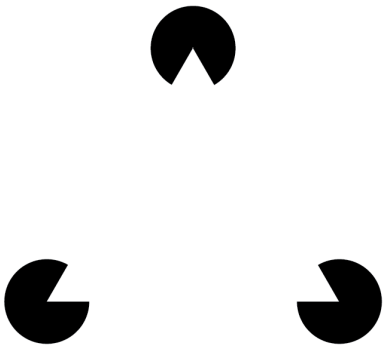


Fig.29: Law of Closure: this leads us to perceive a triangle through its edges are not explicitly shown.

Law of Prägnanz (Good form):

A stimulus will be organized into a figure or form as good as possible. Here, good means a combination of simple forms. The above image (Fig.30) appears to the eye as a square overlapping a triangle or the triangle overlapping a square, not a combination of several complicated shapes which is not harmonious and balanced.

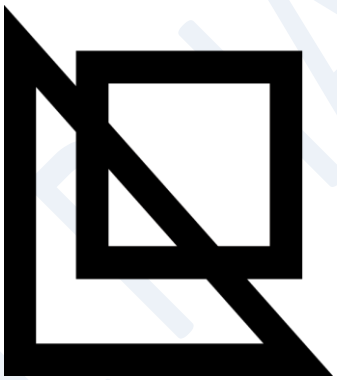


Fig.30: Law of Prägnanz (Good form)

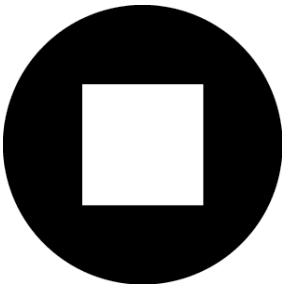


Fig.31: Law of Figure/Ground

Law of Figure/Ground and its semantic application:
A stimulus will be perceived as separate from its ground. . The above figure appears to the eye as a square inside a circle, or as a donut shaped circle with a square hole. Figure 31.

Figure/ground reversals create a delightful "surprise" in the viewer's eye that we have discussed in figure and ground relationship in previous lesson (Fig.15). Fig.32 demonstrates the cup plate and the fork used as figure and ground relations and how design elements can be used as meaningful manner in design solution of a particular context. Using minimum design elements to get optimum visual effects to make the design more meaningful. e.g. the first image a bird and chicks along with a nest, here, how beautifully and meaningfully depicting the essence of the subject in figure and ground relation, in the second image is a logo of a food product company showing fruits, mango, orange and a chilli in a positive space (white) and the first letter of the company B can be seen as negative space(black). It is very interesting to observe the relation of figure and ground and how meaningfully they are being created. (*Students may create various shapes of design drawing and layout of figure and ground relation for clear understanding of how to use design elements for a particular context in the classroom itself.*)

a

b

c

Fig.32 a, b, c, Semantic application of figure and ground

Lecture-3

Introduction to Perception:

Perception:

Perception is the preference of selection, organization, and interpretation of sensory input. It is the process of obtaining information about both the external and the internal environments, which results, via integration utilizing memory, in the conscious experience, recognition, and interpretation of objects, object relationships, and events Fig.33. The ability to perceive spatial relationships especially the distances between objects, in three dimensions fig.34.

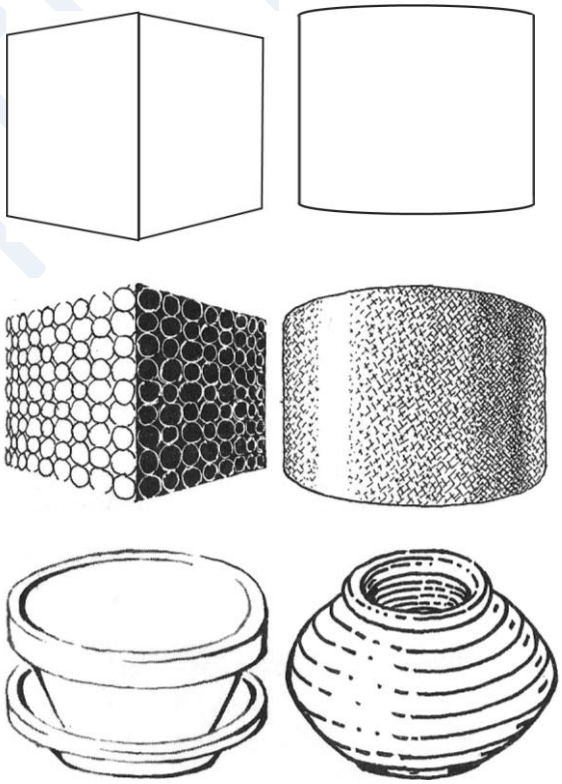


Fig.33: Depth and its representation.

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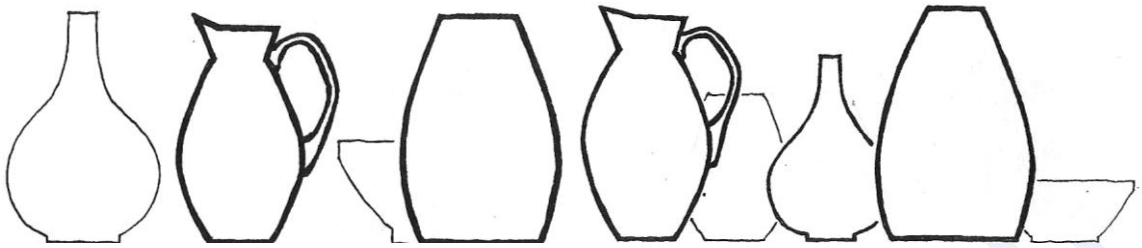


Fig.34: An object drawn with a thinner line is perceived as being further.

In the above objects you can see the use of thick and thin lines to create visual distances between the objects. Though objects are on the same plane the thick line gives the impression of being closer and the thin or faint line creates distances between objects. While perceiving visual perspective (near and far) sometimes it's very difficult to represent them visually in a simple manner. Therefore, trying this technique to reduce the difficulty of representing visual distances between objects.

Depth Perception:

Depth perception is the ability to see the world in three dimensions and to perceive distance. Although this ability may seem simple, depth perception is remarkable when you consider that the images projected on each retina are two-dimensional. From these flat images, we construct a vivid three-dimensional world.
To perceive depth, we depend on two main sources of information:

1. Binocular disparity
2. Monocular cues

Binocular disparity:

Perhaps the most important perceptual cues of distance and depth depend on so-called binocular disparity. Because our eyes are spaced apart, the left and right retinas receive slightly different images. This difference in the left and right images is called binocular disparity. The brain integrates these two images into a single three-dimensional image, allowing us to perceive depth and distance. The phenomenon of binocular disparity functions primarily in near space because with objects at considerable distances from the viewer the angular difference between the two retinal images diminishes.

Monocular cues:

Monocular cues are cues to depth that are effective when viewed with only one eye. Although there are many kinds of monocular cues, the most important are interposition, atmospheric perspective, texture gradient, linear perspective, size cues, height cues, and motion parallax.

Interposition:

Probably the most important monocular cue is interposition, or overlap. When one object overlaps or partly blocks our view of another object, we judge the covered object as being farther away from us as see in Fig .24c.

Atmospheric Perspective:

The air contains microscopic particles of dust and moisture that make distant objects look hazy or blurry. This effect is called atmospheric perspective, and we use it to judge distance.

Texture Gradient:

A texture gradient arises whenever we view a surface from an angle, rather than directly from above. The texture becomes denser and less detailed as the surface recedes into the background, and this information helps us to judge depth.

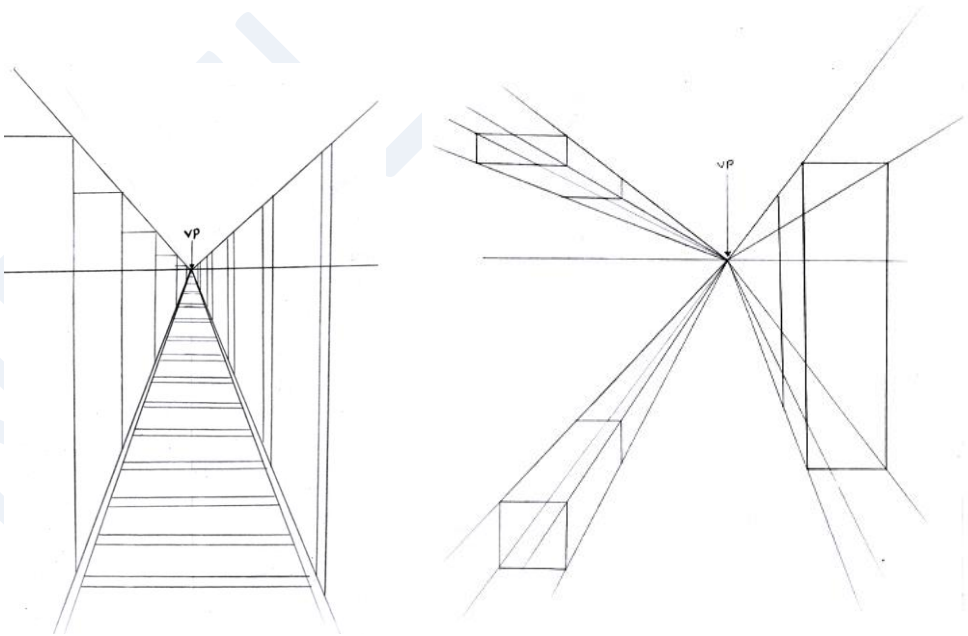
Lecture-4

Depth Perception through Linear or one point Perspective:

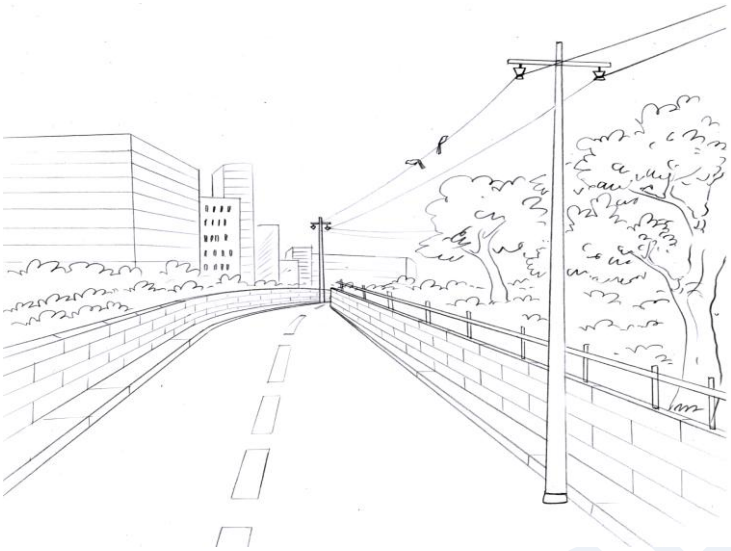
When we see object in distance from a particular angle, sometimes we see it as an illusion to know how we must know about perspective and its principles. There are three types of perspective generally we encountered with while looking at objects from distances apart from what we discussed earlier. These are one point perspective, two point perspective and three point perspective.

Linear or one point Perspective: Linear perspective refers to the fact that parallel lines, such as railroad tracks, appear to converge with distance, eventually reaching a vanishing point on the horizon. The more the lines converge, the farther away they appear. One vanishing point is typically used for roads, railway tracks, hallways, or buildings viewed so that the front is directly facing the viewer as shown in Fig.35. Any objects that are made up of lines either directly parallel with the viewer's line of sight or directly perpendicular (the railroad slats) can be represented with one-point perspective.

One-point perspective exists when the picture plane is parallel to two axes of a rectilinear plane — a plane which is composed entirely of linear elements that intersect only at right angles. If one axis is parallel with the picture plane, then all elements are either parallel to the ground plane or level (either horizontally or vertically) or perpendicular to it. All elements that are parallel to the ground plane are drawn as parallel lines. Elements that are perpendicular to the ground plane converge at a single point (a vanishing point) on the horizon. A typical example of one-point perspective is shown in Fig.35.



(a) (b)



(c)

Fig. 35a, b and c: An example of linear or one point perspective

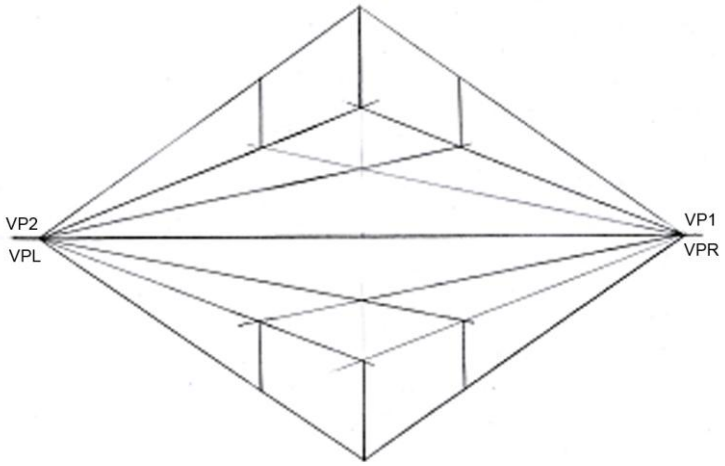


Fig.36(a): An example of two point perspective

Two-point Perspective:

Two-point perspective can be used to draw the same objects as one-point perspective, rotated: looking at the corner of a house, or looking at two forked roads shrink into the distance. For example, one point represents one set of parallel lines; the other point represents the other. Looking at a house from the corner, this refers as station point. (SP) one wall would recede towards one vanishing point, while the other wall would recede towards the opposite vanishing point. Two vanishing points (it usually refers to VP1 (right) and VP2 (left)) or VR and VL generated from the same horizon and define the contour of a particular object.

Two-point perspective has two sets of parallel line to the horizon and these two sets gradually converse to a vanishing point in the horizon, which has been already referred as VP1 and VP2. See fig. 36(a).

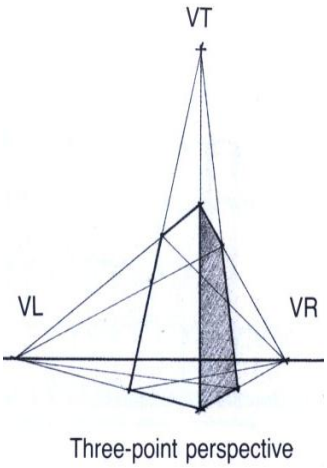


Fig.36(b): An example of three point perspective

Three-point Perspective:

Three-point perspective is usually used for buildings seen from above (or below). In addition to the two vanishing points from before, one for each wall, there is a third to show how those walls recede into the ground. This third vanishing point will be below the ground. Looking up at a tall building is another common example of the third vanishing point. This time the third vanishing point is high in space.

Three-point perspective exists when the perspective is a view of a Cartesian plane where the picture plane is not parallel to any of the scene's three axes. Each of the three vanishing points corresponds with one of the three axes of the scene.

One-point, two-point, and three-point perspectives appear to embody different forms of calculated perspective. The methods required to generate these perspectives by hand are different. Mathematically, however, all of them are identical.

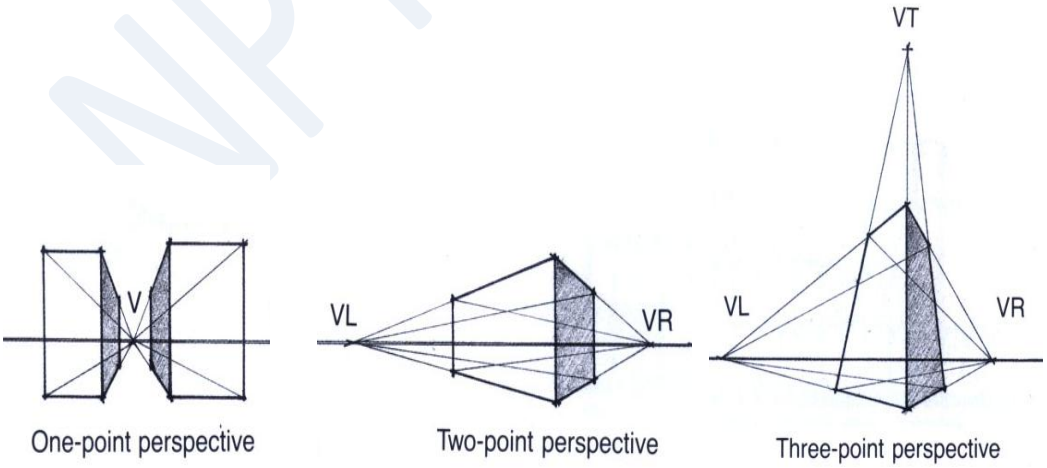


Fig.37: Description of Perspective

Three perspective angles for your clear visual understanding

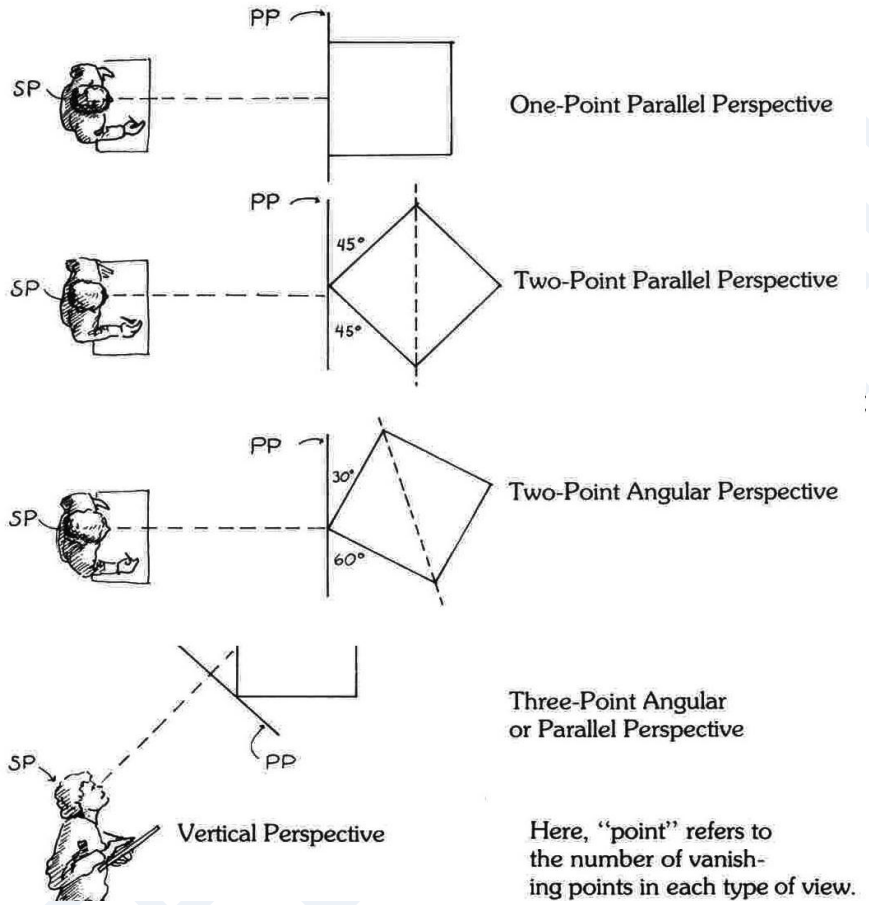


Fig.38: Visual Perspective

Eye level:

The first image lies below the eye level, the second one lies in the eye level and the third one lies above the eye level. These are three basic eye levels we usually encounter while looking at any visual object around us.

(Take any object and try to draw in various eye levels in order to understand the basic visual perception as shown in Fig.39.)

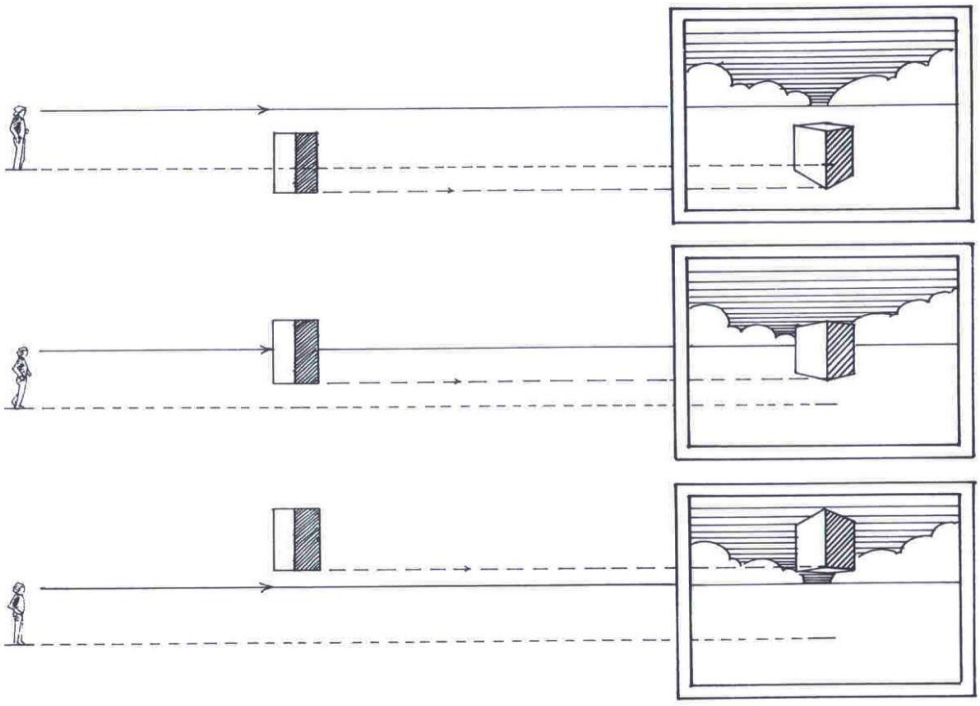
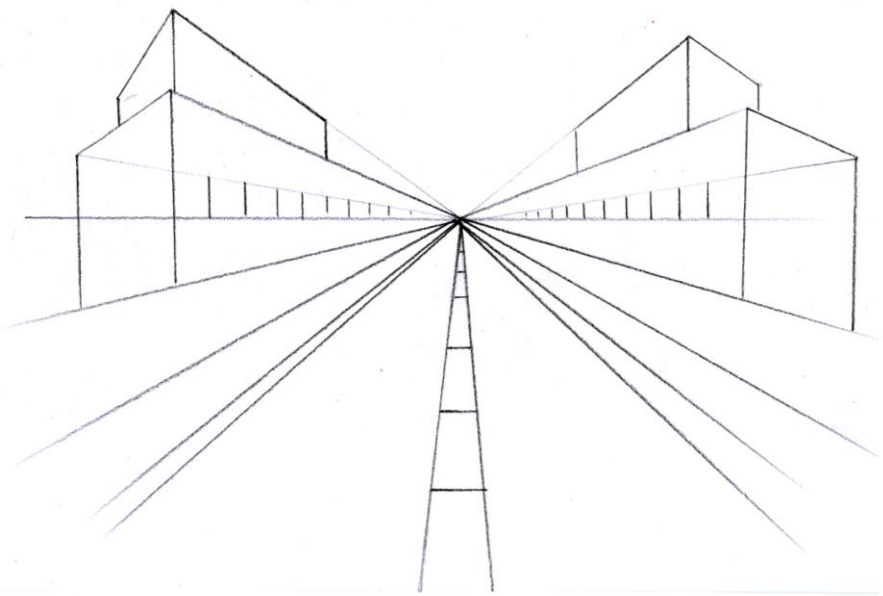


Fig.39: Various eye levels

Question & Answer

Module 2

1. What is visual perception?
    - See lecture 1 Gestalts Law. Try to develop another set of illustration by catchy reference from lecture1.
2. What do you mean by figure and ground and its relation while doing a meaningful design layout?
    - See lecture 2 for easy understanding and try to develop a meaningful illustration.
3. What is perception and depth(visually)
    - Perception of depth as explained in lecture 3. Show by illustration as reference given in the lecture.
4. What is perspective? While developing a drawing how it helps us to attain the accuracy.
    - See lecture 4 and try to understand the method of doing perspective in term of an illustration.



Module 3

Lecture-1

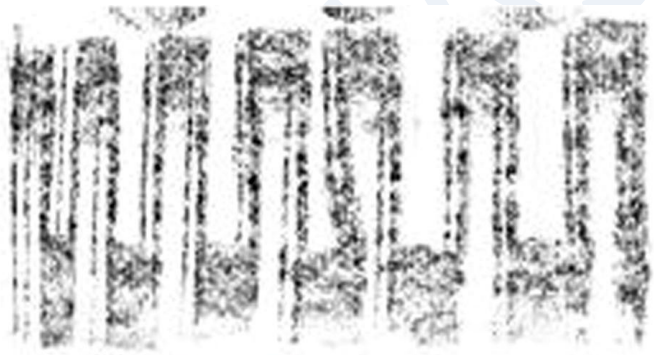
An introduction to media and tools to create surface textures:

While there is a need to create surface textures for any design layout the designer use various tools, e.g. graphite, lead and charcoal to make the layout effective. In this module we are going to discuss about use of various tools along with illustrated examples.

Various ways of creating surface texture:

Below some of the examples given which are done by students for their practical studio practice. By referring to these, one can easily create different textural effects in terms of various tools as already mentioned. This would be beneficial for the students in making their design layout.

Some examples of Graphite marks are shown in Fig.40: (*Student must practice this in the class).*



(a)

Let us try this pulling and pushing motion with a graphite pencil. You may change the motion in order to have different texture. This gives interesting vertical parallel texture of black and white.

(b)

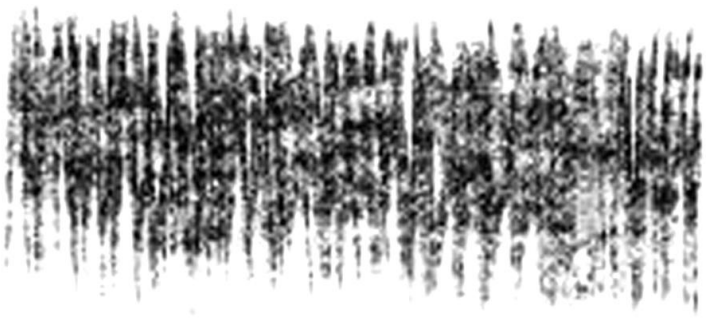
The above image (b) showing effect by just stabling with the end part of a graphite pencil. Also by changing stabling motion can be created different sets of interesting effects on a 2d surface. Try how to obtain 3 dimensional effects of various kinds. Therefore, it is suggested that experiments with graphite pencil in order to achieve textures of various kinds.

(c)

Thick lateral and thin vertical mark making creates interesting texture given boundary panelling effect same way below showing some example of various textures by different stroke

(d)

Vertical mark making give verticality of the space and gives an effect of woods.



(e)

Zigzag mark(fig.e) making creates very interesting embossed effect on the surface and gives vertical upward movement.

(f)

Using a twisted movement with the graphite pencil‘s side give 3 dimensional effects of any objects.

(g)

Dragging the graphite pencil for a flat stroke gives an effect of rough textured surface.

Fig.40: Experimentation with graphite marks.

Lecture-2

Effect of lead pencil marks:

Though we generally call it as lead pencil actually there is no lead in pencils. Instead, the core of this is made up of non-toxic mineral called graphite. This also we called as pencil lead. Graphite is soft black lead. There are various types of graphite available for easy use as required by designer or artist A thin or thick stick of pigment (usually graphite can also be coloured pigment or charcoal) usually encased in a thin or thick wood cylinder, though paper and plastic sheaths are also used. Hardness or softness of graphite is usually identified by a number (2, 2-1/2 or 3) or letters (HB, 2B, H or F etc. This is a very useful sketch/drawing material for designers and artists to create texture as required for their layout

Bellow some interesting visual effects which can be created by using lead pencil. These can be used for specific

requirement of design. Some illustrations are shown for hands on practice in order to understand the use of lead or graphite pencil for creating effective textures. (*Students will practice in the class room itself*)

Hard Pencils- Figure.41- L1, L2, L3, L4, L5, L6, L7, L8, L9, L10

Soft Pencils- Figure.42- L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23.

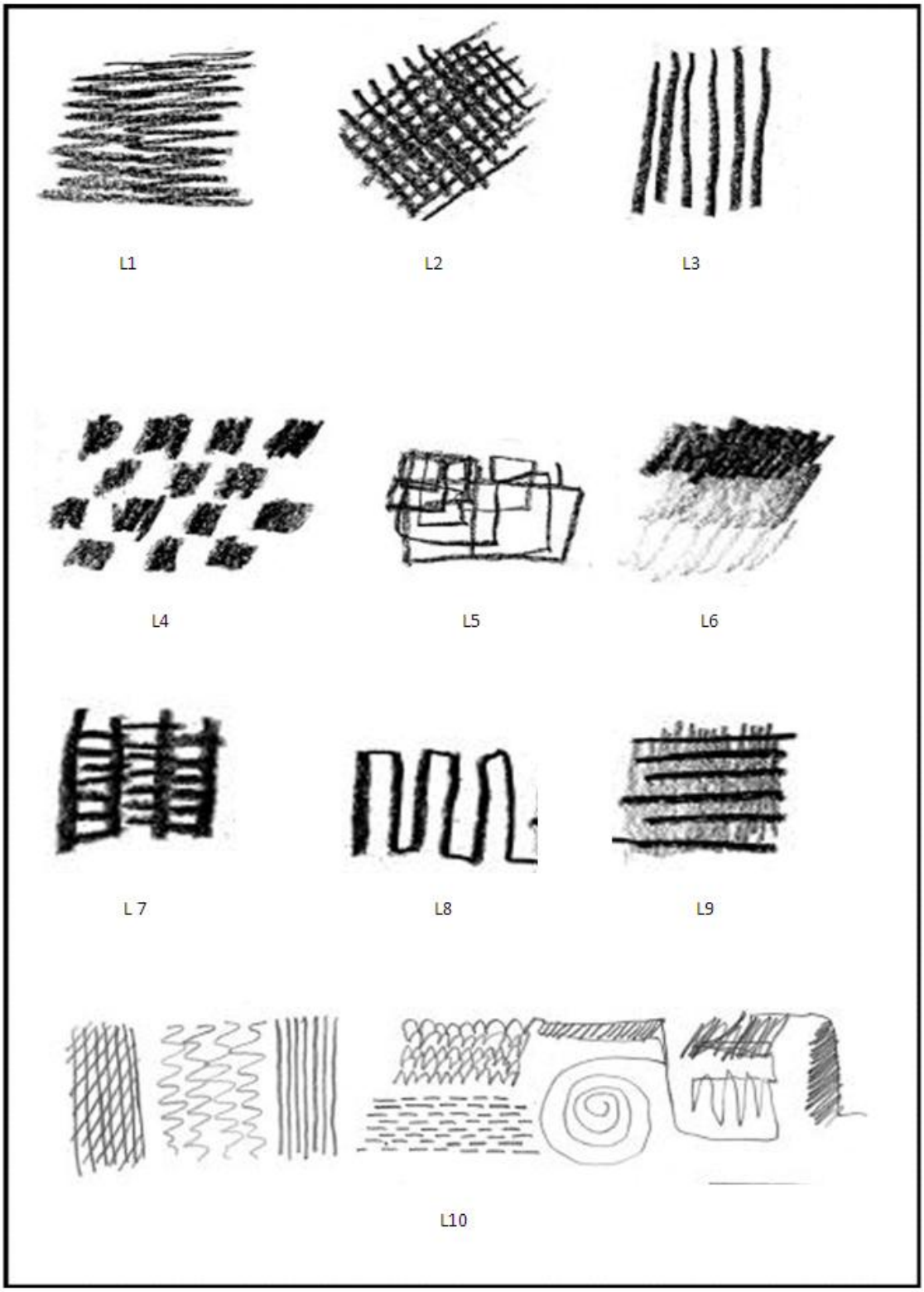


Fig.41: Visual effects created by using Hard Pencils

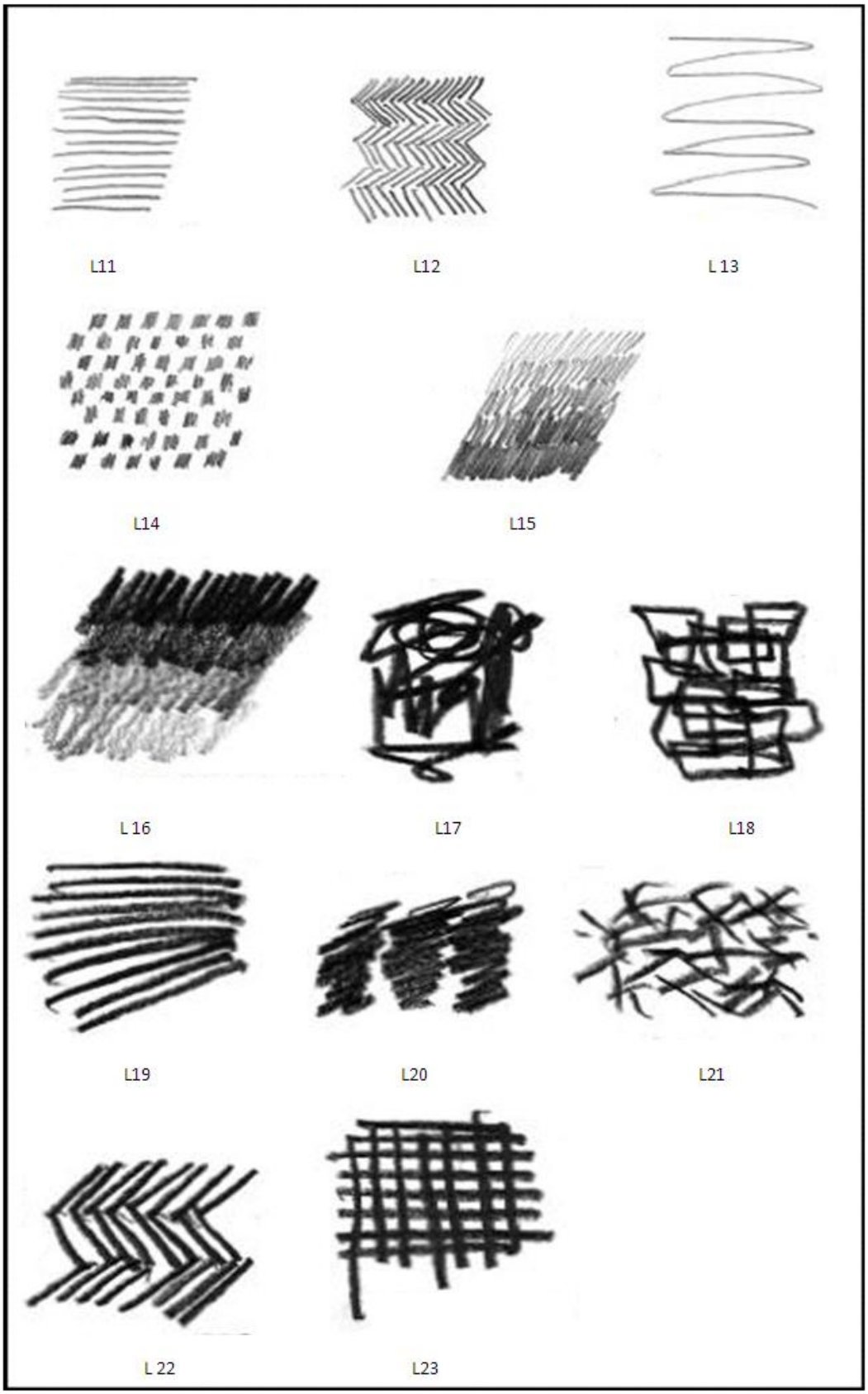


Fig.42: Visual effects created by using Soft Pencils.

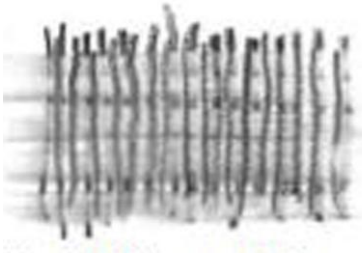
Lecture-3

Soft pencil marks:

For creating 3D effects on 2D surface (students should practice the illustrations given below in the class room itself to sharpen their manual skill.

S1

S2



S3

S4

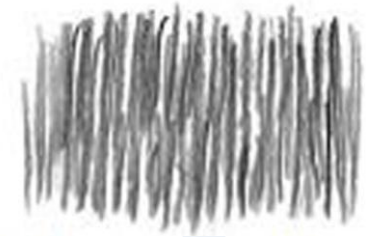
S5

S6

S7

S8

S9



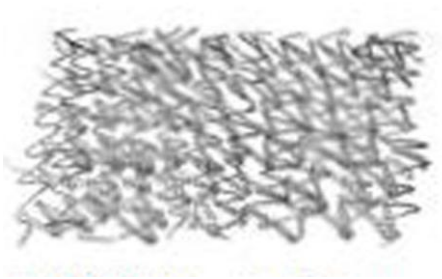
S10

S11

S12

S13

S14



S15

Fig.43: Illustration on the use of creating 3D effects on 2D surfaces

Question & Answer

Module 3

1. Why designs use texture for design layout? Use lead pencil (soft or hard) to illustrate them.
    - See the illustration showing in lecture 1 and try to develop various texture of your own.
2. Create 3d surface on a 2d surface by using soft pencil
    - See figure 43 in lecture- 3

Module 4

Lecture-1

Developing basic drawing:

Lines-straight, curvilinear, angular, thick-thin, plane, volume etc.

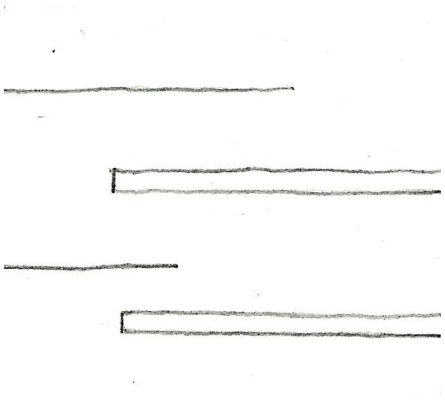
In order to understand basic format of different line compositions and various characteristics of lines and their orientations, we will show some effective example for easy understanding (Fig.44).

Straight Lines: Thick, thin and angular. Some of them can be put in a diagonal way for different purpose of design layout.

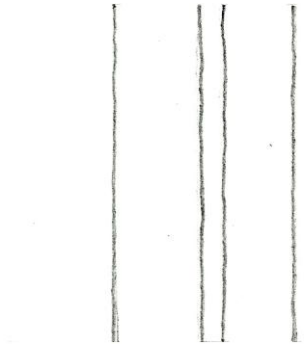
(a)

(b)

(c)

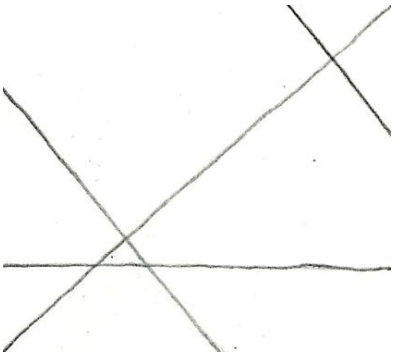


(d)

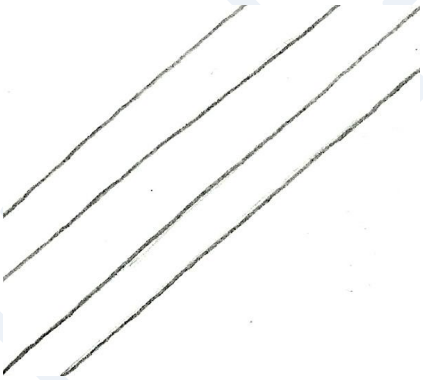


(e)

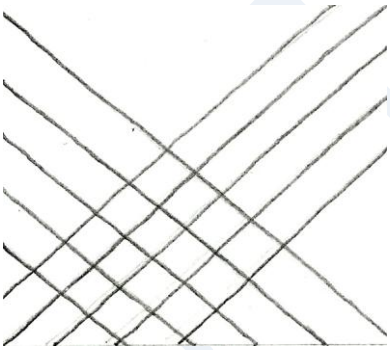
(f)



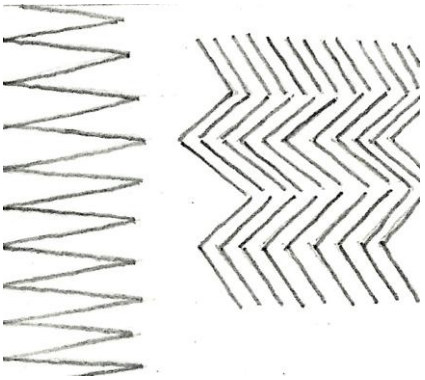
(g)



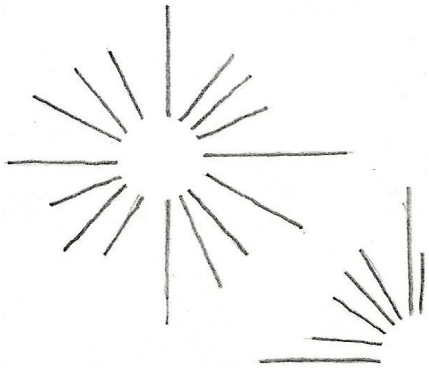
(h)



(i)



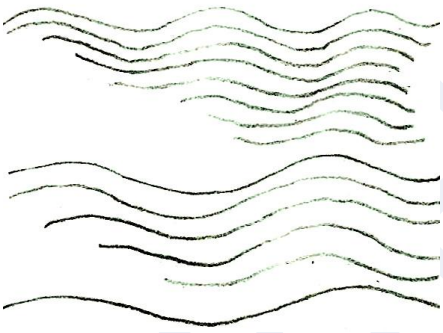
(j)



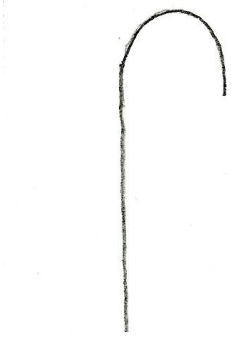
(k)

Fig.44: Thick, thin and angular lines.

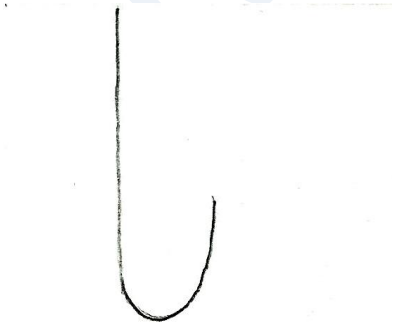
Curvilinear Lines: Thick, Thin and Angular. Some characteristics of curvilinear line and their possible visual representation are shown in Fig.45. These are some simple line characters usually we see in the nature. e.g. In fig. ‘a’ we see wave like character in fig ‘e’ we see falling character, likewise we see spiral(f), zigzag(j) and bushy (i) characters just by few lines. Therefore it is important to understand, what kind of lines can give required visual effect and meaning.

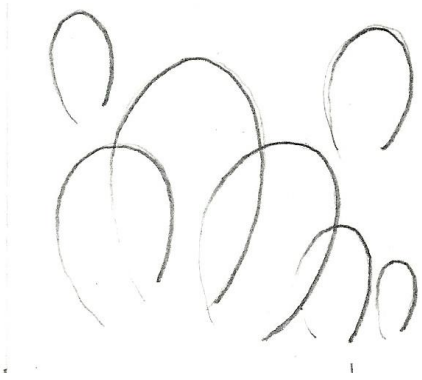


(a)



(b)





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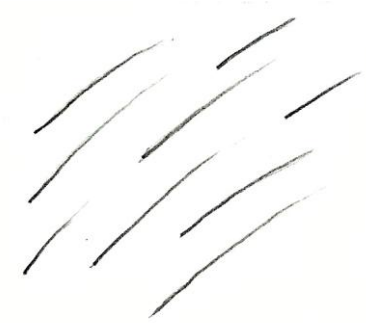

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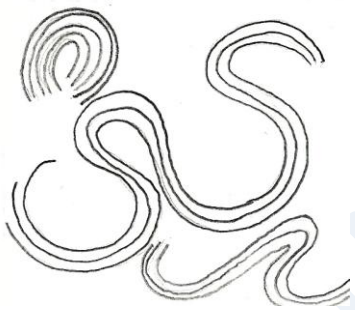

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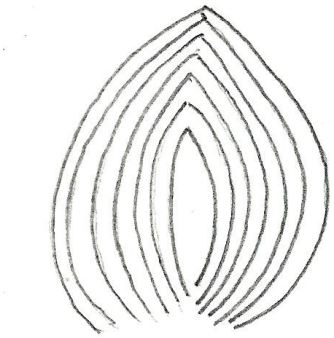

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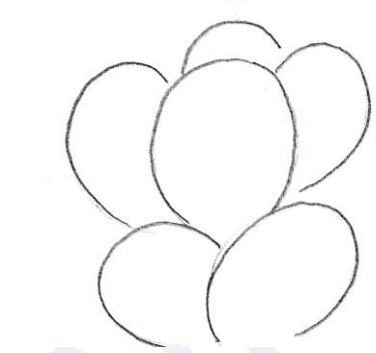

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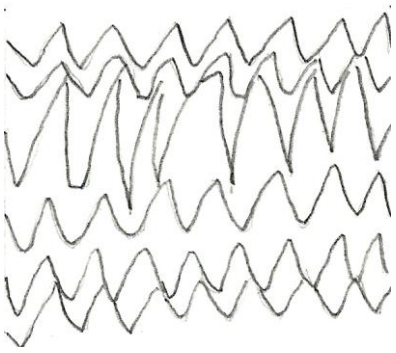

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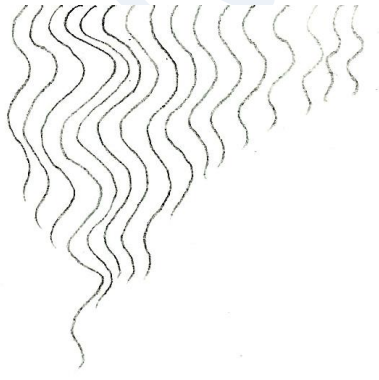

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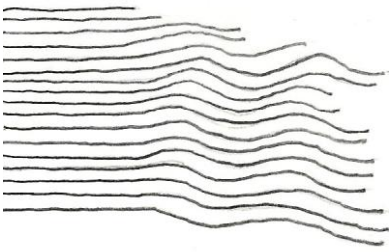


(m)

Fig.45: Curvilinear Lines.

Lecture-2

Line Variety:

Conveying Movement of Volume in Terms of Line. Through lines we can visualize various movements as explained below:

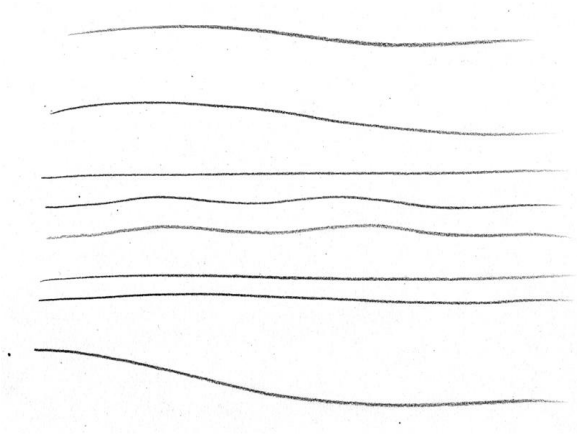
In the example below the lines shown represent natural/human-made objects. The horizontal lines could be visualized as the forms gentle waves of a calm sea. As the lines become energized they come to represent a results sea or a turbulent wave. Vertical lines may represent the bars of a window or the trunks of trees. Through lines we can visualize various movements and the figure below illustrate this.

With simple curvy horizontal lines one can easily convey the impressions of a distant sea and calm seashore as depicted in Fig.46 (a).

With a little turbulence in the line construction, it is easy to convey movement in the sea as waves and restless seashore as depicted in Fig.46 (b).

With lines, the above cloud structured lines may signify the sea and represent a strong splash of wave and the character of the angry sea as depicted in Fig.46 (c).

With a mixture of horizontal and curve lines it is easy to portray a picture of a turbulent stormy sea and splashes of waves across the rocks as depicted in Fig.46 (d).



(a)

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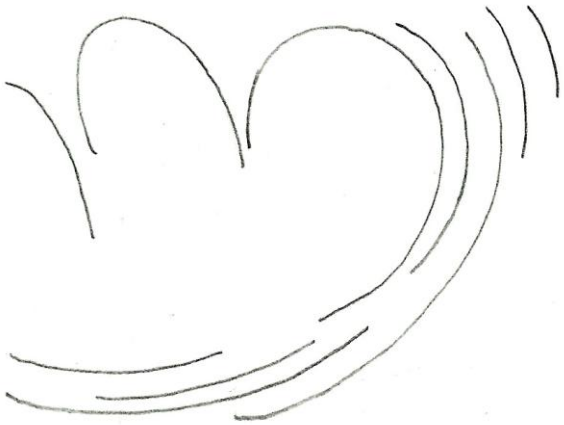
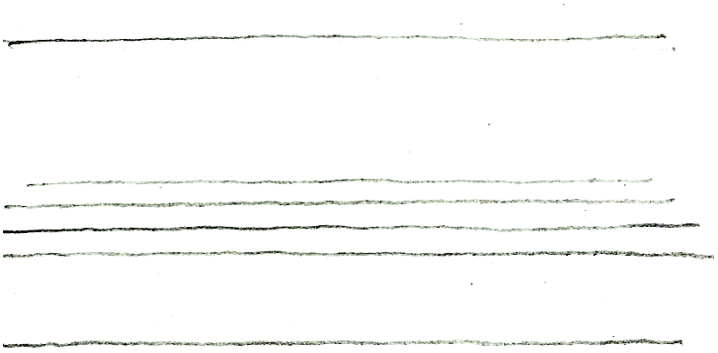


(c)

(d)

Fig.46: Conveying movement through lines



(a)

Horizontal lines conveying calm sea without a subject, here subject means the visual images.

(b)

Horizontal and curvilinear lines conveying turbulent sea and a subject.

(c)

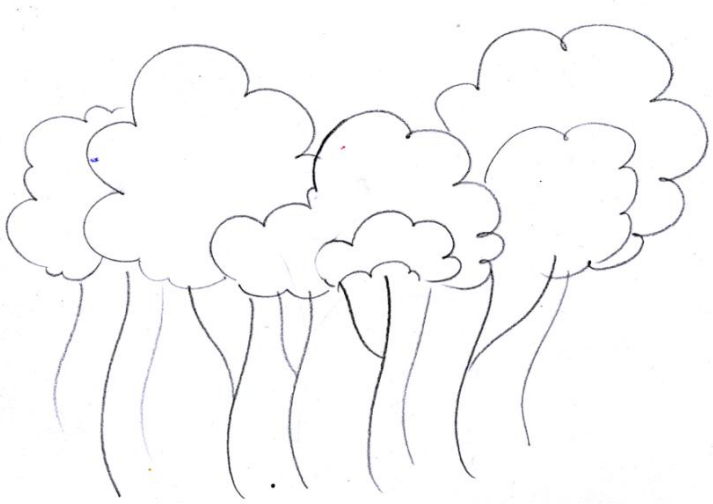
Fig.47: Visualization of various movements through Horizontal Lines

(a)

Vertical lines conveying calm environment without a subject.

(b)

Vertical lines with curved shape conveying calm environment with a subject.



(c)

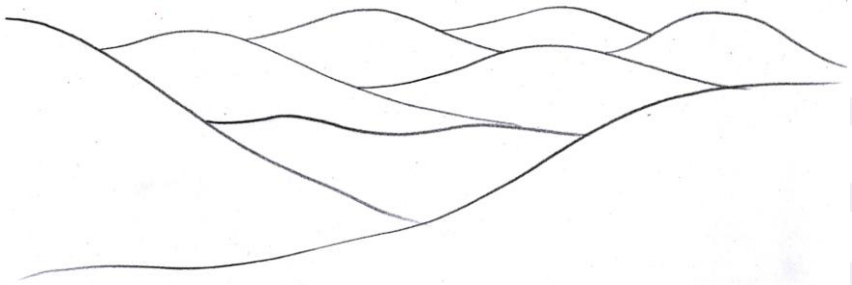
Vertical lines with curved shapes conveying turbulent environment with the subject which is being disturbed.

Fig.48: Visualization of various movements through Vertical Lines

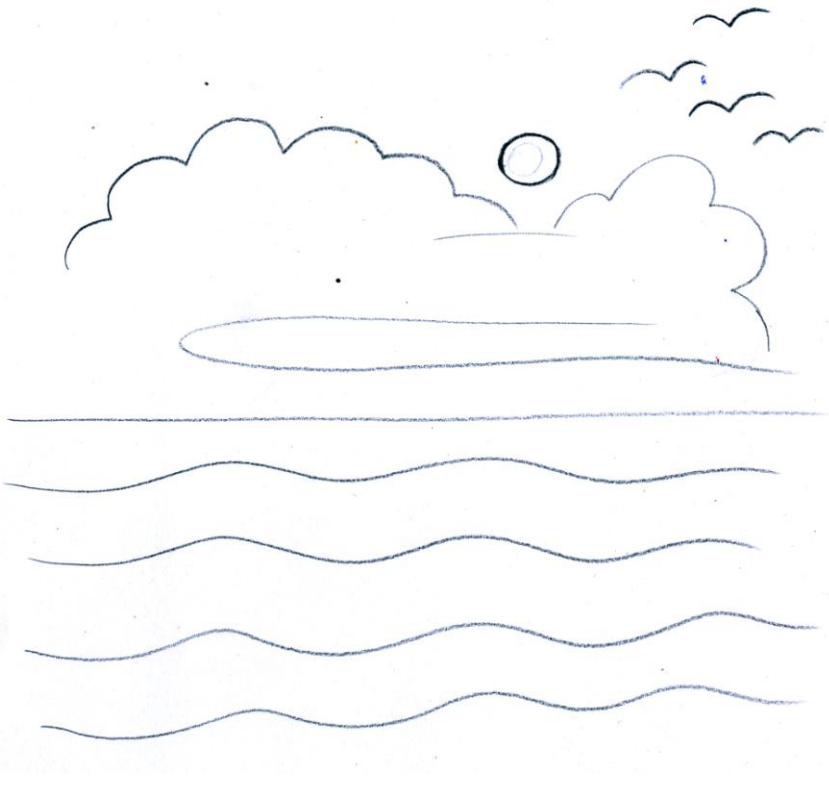
Question & Answer

Module 4

1. Create various visual movements through lines we see in the nature?
    - See the lecture 2 and see the illustration given bellow



2. What is line variety? how we can represent movement through line
    - See the illustrations of lecture 2 and images from the nature shown bellow



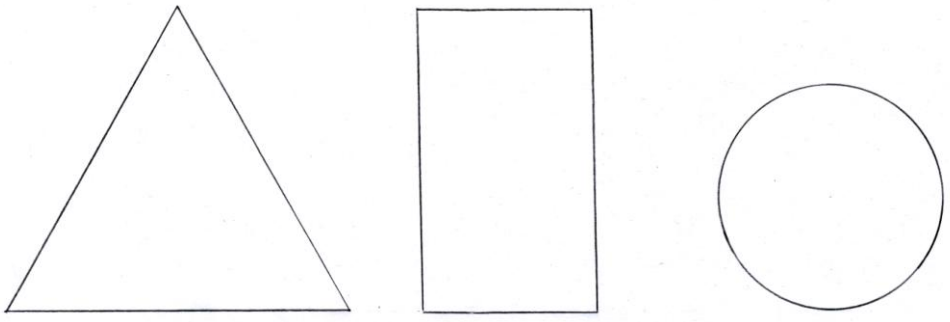
Module 5

Lecture-1

Nature drawing - to study form and structure and various shapes

Basic forms:

There are four basic forms you should know: the triangle, rectangle and circle. Each of these forms can be an excellent guide at the beginning of a complex drawing or painting. Below are some examples of these forms in simple use.

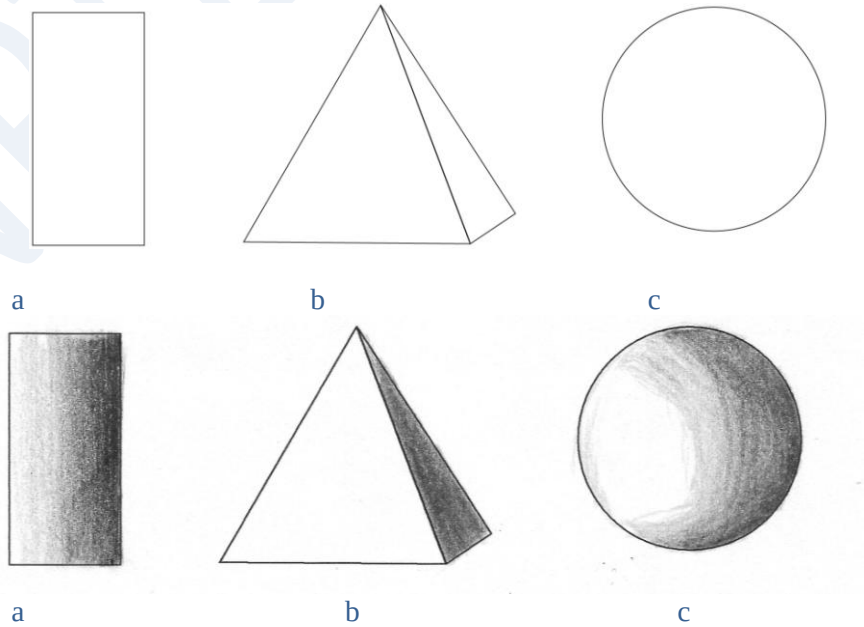


Triangle Rectangle Circle

Fig.49: Three basic shapes: the triangle, the rectangle and the circle.

Creating depth with shading:

To create the illusion of depth when the shapes are viewed straight on, shading must be added. The shading creates different values and gives the illusion of depth and form. The examples given below show a cylinder, a pyramid, and a sphere in both the line stage and shading for depth, where light source is from left.



a b c

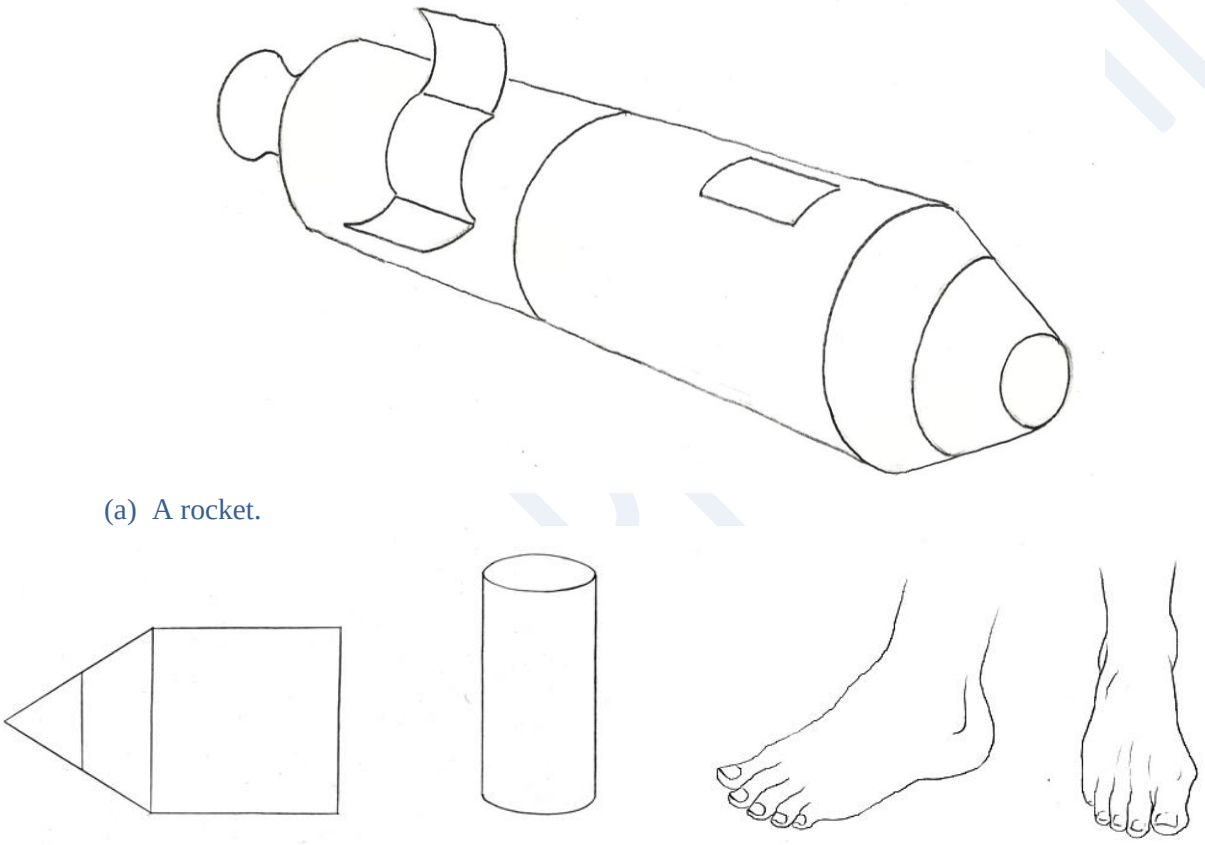
a b c

Fig.50: Three basic forms: the cylinder, the pyramid and the sphere.

Foreshortening:

To foreshorten is "to represent the lines (of an object) as shorter than they actually are in order to give the illusion of proper relative size, in accordance with the principles of perspective." Foreshortening is most successful when accurately rendered on the picture plane to create the illusion of a figure in space. Foreshortening occurs when an object appears compressed when seen from a particular viewpoint, and the effect of perspective causes distortion. Here are a few examples of foreshortening to practice.

Fig. 51: a,b,c,d



(a) A rocket.

(b) A cube (c) A cylinder (d) Human feet.

Fig.51: Examples of foreshortening.

Ellipses:

An *ellipse* is a circle viewed from an angle. Looking across the face of a circle, it is foreshortened, and we see an ellipse. The axis of the ellipse is constant, and it is represented as a straight centreline through the longest part of the ellipse. The height is constant to the circle. See the image below to show how a circle is viewed as an ellipse and finally one can draw a wrist watch from an angular position known as perspective.

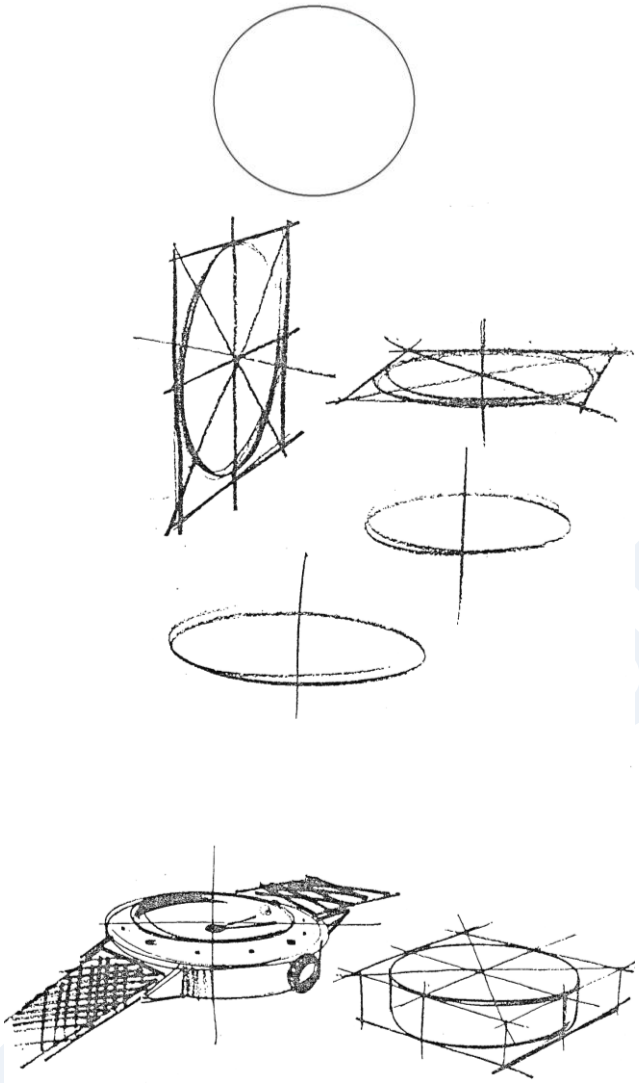


Fig.52: A circle easily can be transformed into a product.

Casting Shadows:

When there is only one light source (such as the sun), all the shadows in the picture are cast by that single source. All the shadows read from the same vanishing point. This point is placed directly under the light source, whether on the horizon line or more forward in the picture plane. The shadows follow the plane on which the object is sitting. Shadows also follow the contour of the plane on which they are incident.

Light rays travel in straight lines. When they strike an object, the object blocks the rays from continuing and creates a shadow relating to the shape of the blocking object. Given below is a simple example of the way to plot the correct shape and length of a shadow for the shape and the height of the light.
If the light is raised, lowered, or moved to the side, the shape of the shadow will change accordingly.

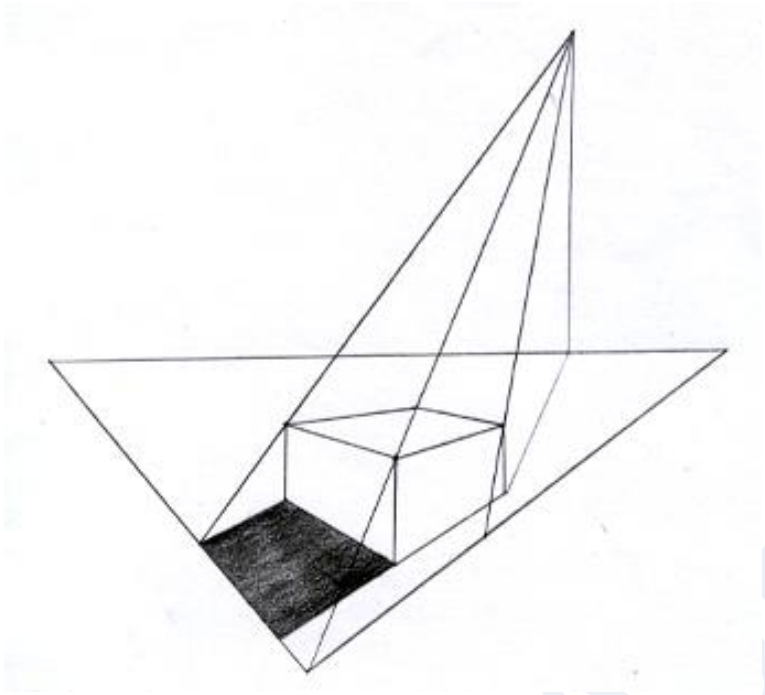


Fig.53. Casting shadows considering only one point of source of light.

Lecture-2

Sketching

Using Circular Strokes:

Loose, circular strokes are very effective for quickly recording of simple subjects or for working out a still life arrangement, as shown in Fig.54.

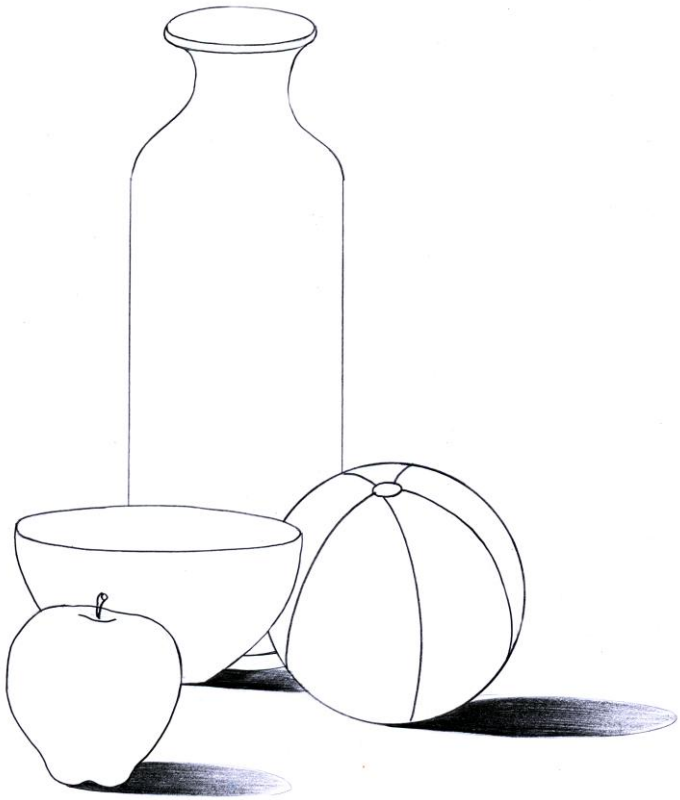


Fig. 54: Circular strokes.

Scribbling:

Free and scribbled lines can also be used to capture the general shapes of objects such as clouds, treetops, or rocks. It is suggested to use a soft lead pencil with a broad tip to sketch the outlines of the clouds; then roughly scribble in a suggestion of shadows, hardly ever lifting your pencil from the drawing paper. This technique effectively conveys the puffy, airy quality of the clouds.

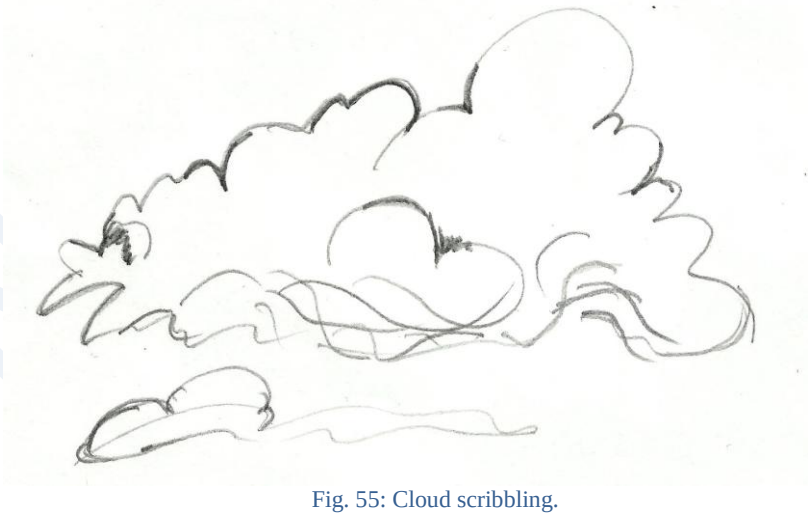


Fig. 55: Cloud scribbling.

Using Wide, Bold Strokes:

This method is used for creating rough textures and deep shadows, making it ideal for subjects such as foliage and hair and fur textures. For this example (Fig.56), the side of a 2B pencil have been used, varying the pressure on the lead and changing the pencil angle to produce different values (lights and darks) and line widths. This creates the realistic form and rough texture of a sturdy shrub. These strokes can create depth on 2 D surface.

Fig. 56: Wild bold strokes representing shrubs.

Sketching for Reference Material:

Here is an example of using a rough sketch as a source of reference for a more detailed drawing. Use of loose, circular strokes to record an impression of the flower's general shape, keeping the lines light and soft to reflect the delicate nature of the subject. Then use the sketch as a guide for a more detailed rendered flower as sown in fig 57.

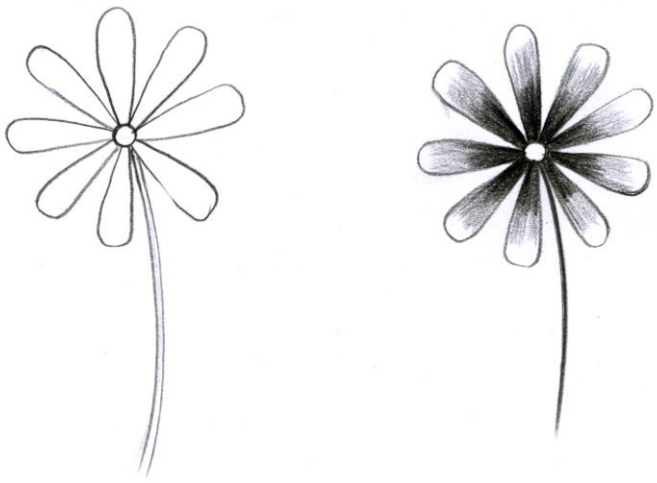


Fig. 57: A quick reference sketch and a detailed rendering.

Conveying Movement:

To show movement in a drawing, we need to follow the viewer's eye and make it appear as if the object is moving up or down, or sideways. In the example shown in Fig.58, the arrows indicate the direction of movement—but the pencil strokes should actually be made in the opposite direction. Press down at the beginning of each stroke to get a strong line, lifting your pencil at the end to taper it off. These lines convey the upward and downward direction of water and the rising and billowing movement of smoke.

Fig. 58: Conveying movement

Rendering Wave Action:

Quickly sketch a wave, using long, flowing strokes to indicate the arcing movement of the crest, and make tightly scribbled lines for the more random motions of the water as it breaks and foams. As in the example below, the strokes should taper off in the direction opposite the movement of the wave. Also sketch in a few meandering lines could be sketched in the foreground to depict the slower movement of the pooled water as it flows and recedes.

Fig. 59**:** Rendering of Wave Action

Lecture-3

Focussing On Negative Space:

Sometimes it's easier to draw the area *around* an object instead of drawing the object itself. The area around and between objects is called the "negative space." The actual objects are the "positive space." If an object appears to be too complex or if anyone is having trouble "seeing" it, try focusing on the negative space instead. We will find that when we draw the negative shapes around an object, we are also creating the edges of the object at the same time. The examples below are simple demonstrations of how to draw negative space.

Filling In:

The white picket fence is created by filling in the negative spaces around the slats. The draw the slats are not drawn—instead the shapes surrounding them are drawn and then filled in the shapes with the side of a soft lead pencil. Once we establish the shape of the fence, we refine the sketch a bit by adding some light shading on the railings. Once the shape of the fence is established the sketch is refined by the background shades. More layer of shades, shell give more realistic appearance of the subject.

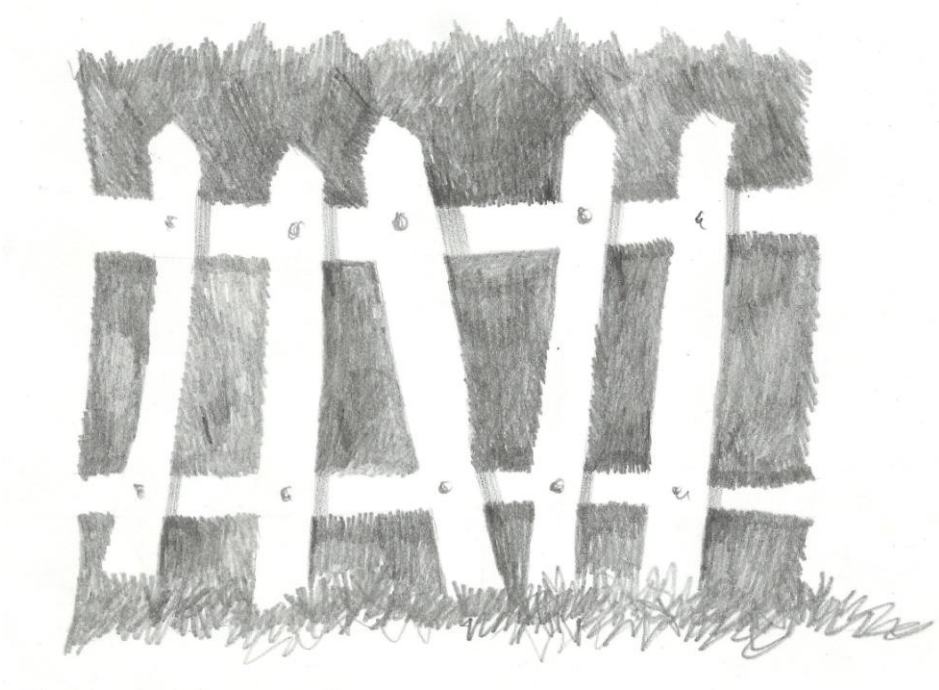


Fig. 60: Filling in the negative spaces of a scene and its structure.

Silhouetting:

For the trees sketching the negative spaces simplifies the drawing immensely. The negative shapes between the tree trunks and among the branches are varied and irregular. This adds a great deal of interest to the drawing. Right kind of shading may give accuracy of the subject. Student should practice this in the class room itself.

Fig. 61: Silhouetting out the deep jungles.

Lecture-4

Drawing with a grid:

An effective way to understand how to draw what is seen is the grid method. The viewing grid shown below is an open, frame like device divided with string into several sections of the same size. This tool helps us break down the scene into small manageable parts, giving us clues as to where our subject should be placed on the paper. A grid stand will hold it steady and in the same place for us.

Step One:

We can also make one using cardboard and string (see the drawing below). Cut a rectangle out of the centre of a piece of cardboard. Find the exact centre of all four sides of the outer rectangle and make a small cut on the outside border. Slip two pieces of string through the slits—one horizontally and one vertically—to divide your viewing grid into four equal sections.

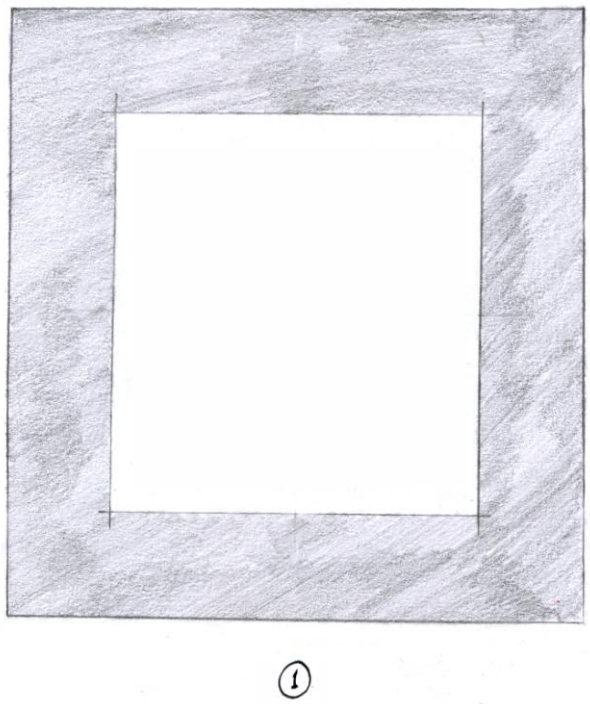


Fig. 62: Making a viewfinder.

Step Two:

Use a ruler and a pencil to lightly draw the same size grid (or a proportionally larger or smaller one) with the same number of squares on a piece of drawing paper. To draw a larger or smaller grid, multiply or divide each measurement by the same number, usually two or three.

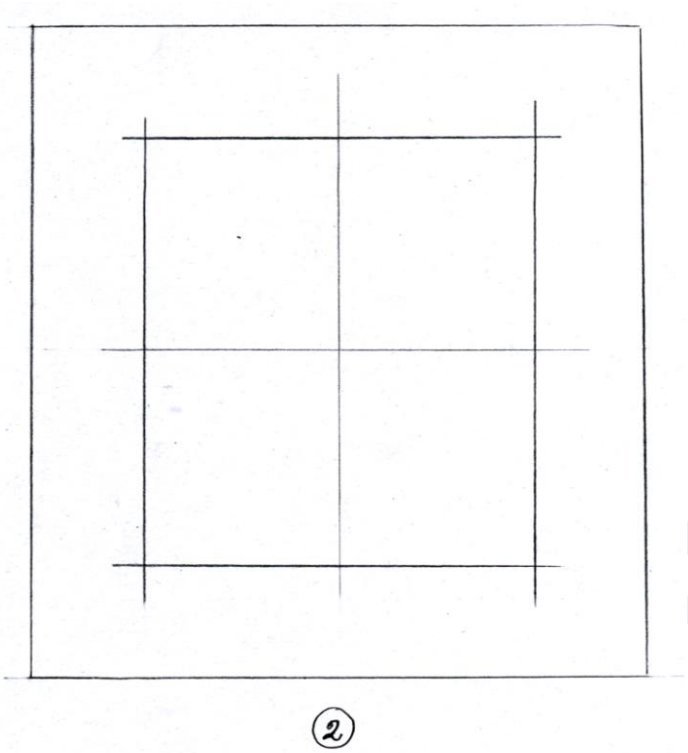


Fig. 63: Drawing the grid

Step Three:

Hold the cardboard grid at arm's length and use it to frame the scene or object we want to draw. The grid and the position of our head must be kept in the same position. To be comfortable from the beginning is useful in the same position for the duration of the drawing.

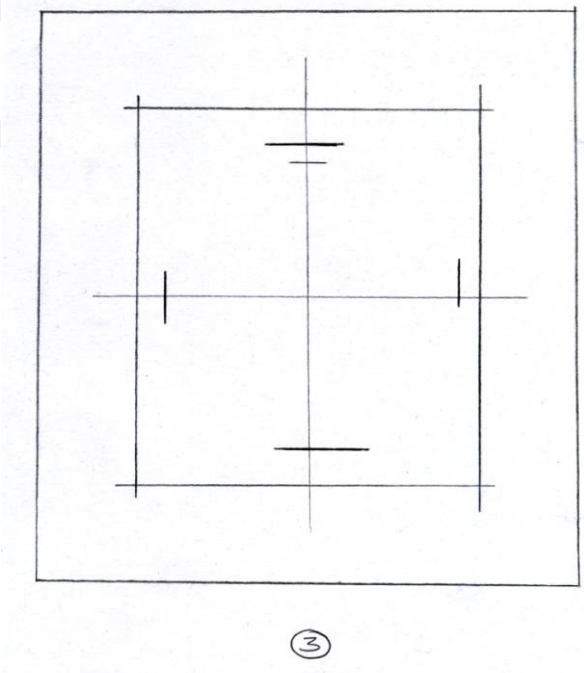


Fig. 64: Framing the scene

Step Four:

With one eye closed, we observe our subject through the grid and notice at what points its outlines cross the grid lines. Then carefully transfer these points to the grid on our drawing paper.

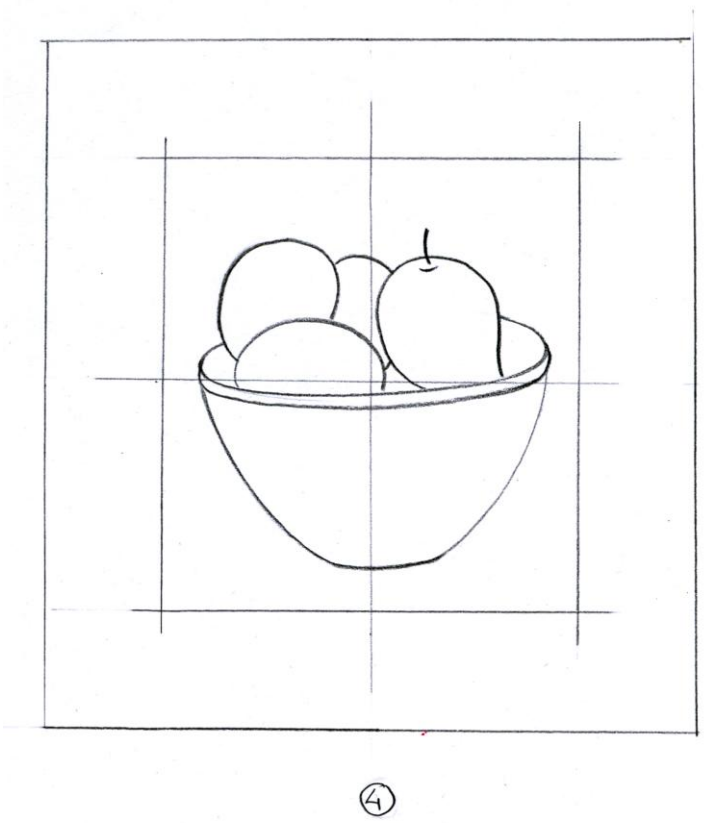


Fig. 65: Observing the subject against grid lines

Step Five:

Now that we have plotted these important reference points, we can begin to fill in the lines between the points. Draw one section at a time, looking through your grid and noting where the shape fits within the grid lines. Just draw with lines initially

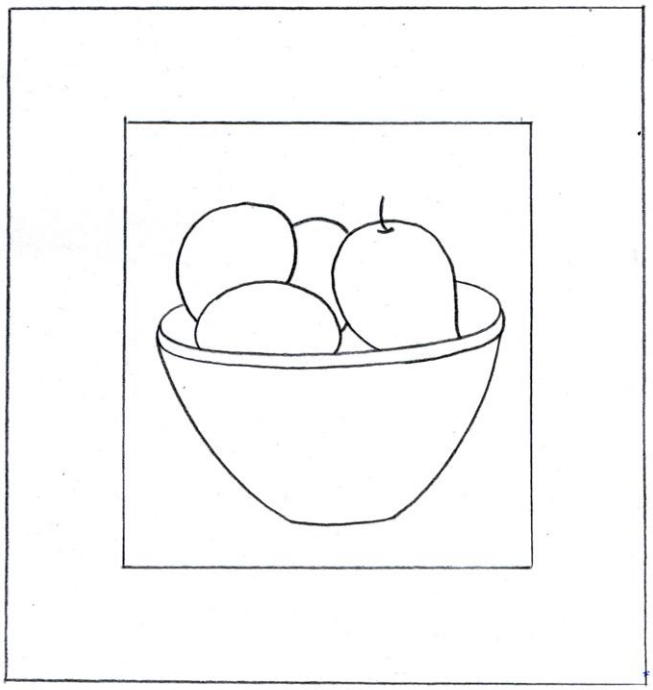


Fig. 66: Drawing the scene

Step Six:

We keep drawing, square by square, frequently studying the subject through the grid until the drawing is complete. Then erase the grid lines, and we will have an accurate line drawing of our subject. In order to add 3 dimensional effects to the drawing you can put proper shading to it, the depth of the bowl, and roundness of the fruits see fig.67.

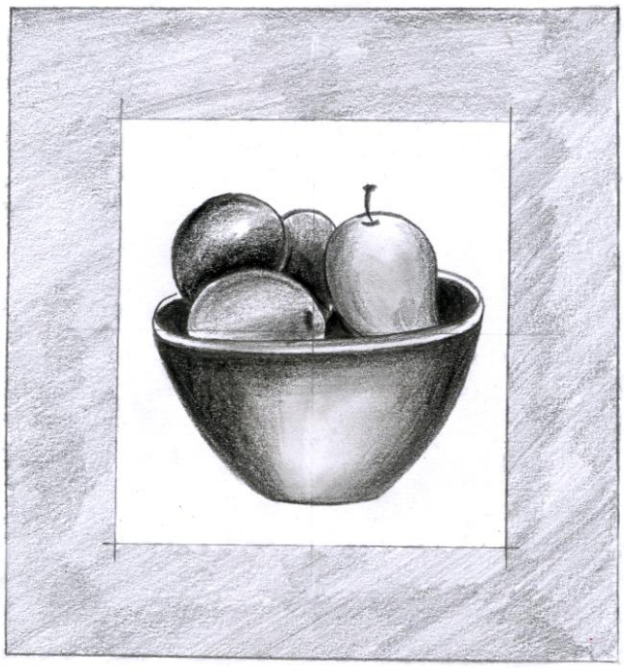


Fig. 67: Completing the drawing and erasing the grid lines

Lecture-5

Beginning with basic shapes:

We can draw just about anything can be drawn by simply breaking down the subject into the few basic shapes: circles, rectangles, squares, and triangles. By drawing an outline around the basic shapes of our subject, we can drawn its shape. But our subject also has depth and dimension, or *form*. As we have seen earlier the corresponding forms of the basic shapes are spheres, cylinders, cubes, and cones. For example, a ball and an apple are spheres, a glass and a tree trunk are cylinders, a box and a building are cubes, and a pine tree and a funnel are cones. This is the first step of every drawing: sketching the shapes and developing the forms. After that, it is essentially just connecting and refining the lines and adding details.

Combining Shapes:

Here is an example of beginning a drawing with basic shapes. We start by drawing each line of action, then build up the shapes of the dog and the chick with simple ovals, circles, rectangles, and triangles.

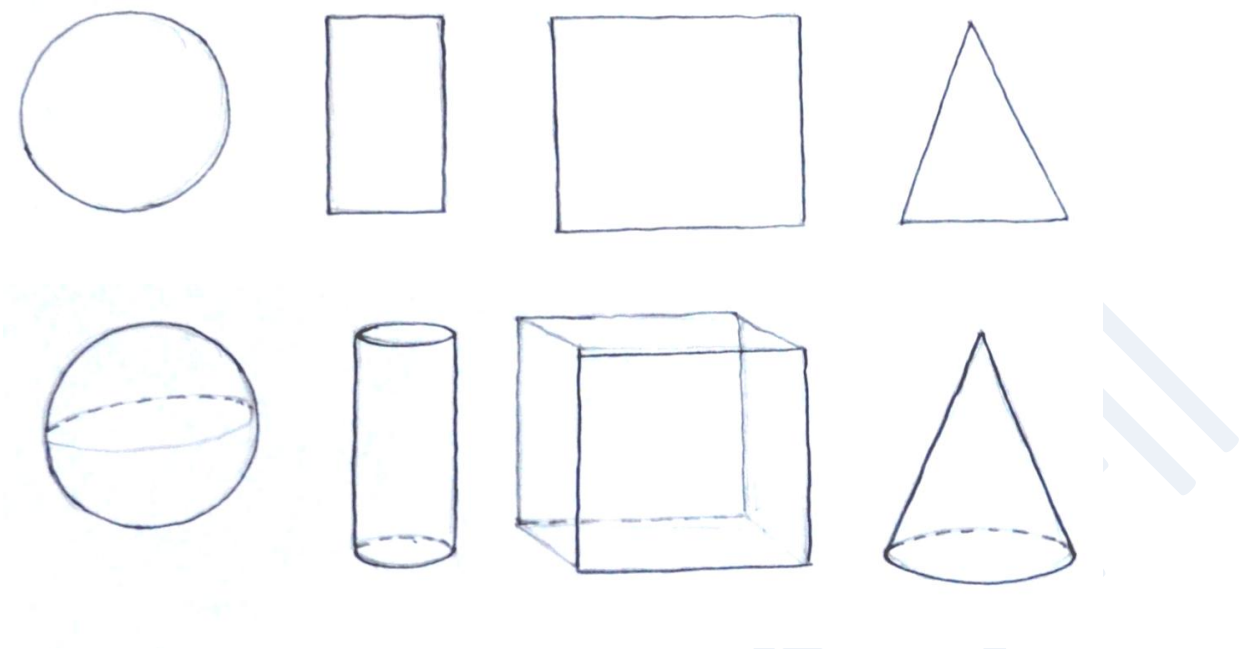


Fig. 68: Shapes turn into forms

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Building Form:

Once we establish the shapes, it is easy to build up the forms with cylinders, spheres, and cones. We notice that the shapes are now beginning to show some depth and dimension and turn into forms.

Creating Forms:

Here are diagrams showing how to draw the forms out of the four basic shapes. The ellipses show the backs of the circle, cylinder, and cone, and the cube is drawn by connecting two squares with parallel lines.

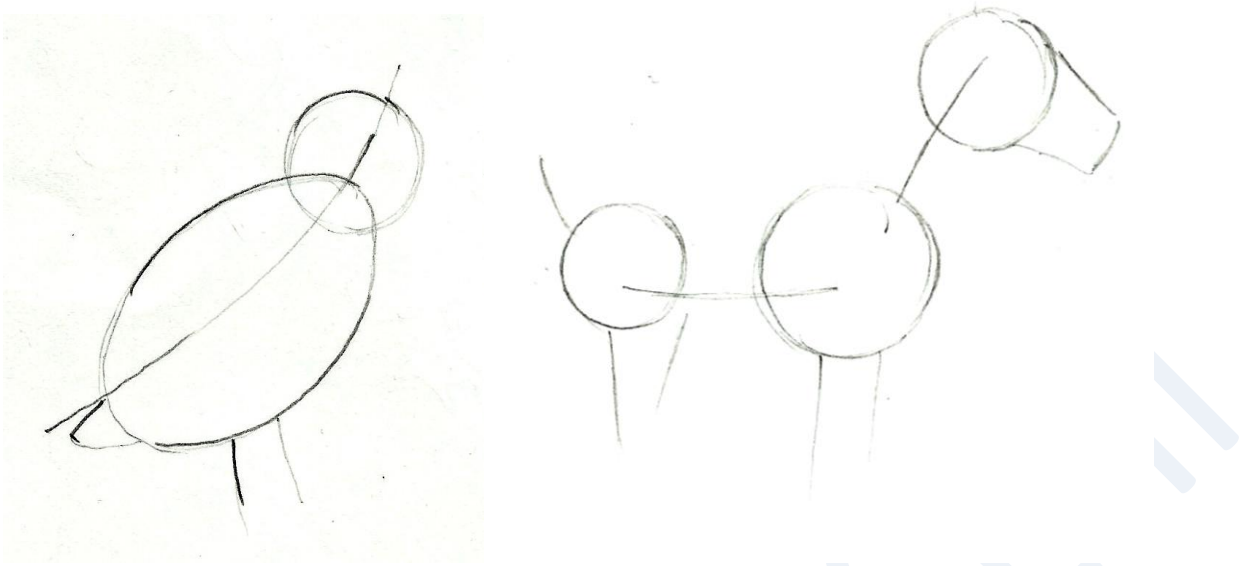


Fig. 69: Drawing a bird and a dog with basic forms

Drawing Through:

Drawing through means drawing the complete forms, including the lines that will eventually be hidden from sight. We assume that basic form of anything in the nature are formated by geomatric shapes fig.69. Therefore, here showing how few basic geomatric shapes can help in producing basic layout of a drawing. A chick and a bird. Here we have taken cercle, ovel and elipces as basic shape to develope the drawing on a centre line.

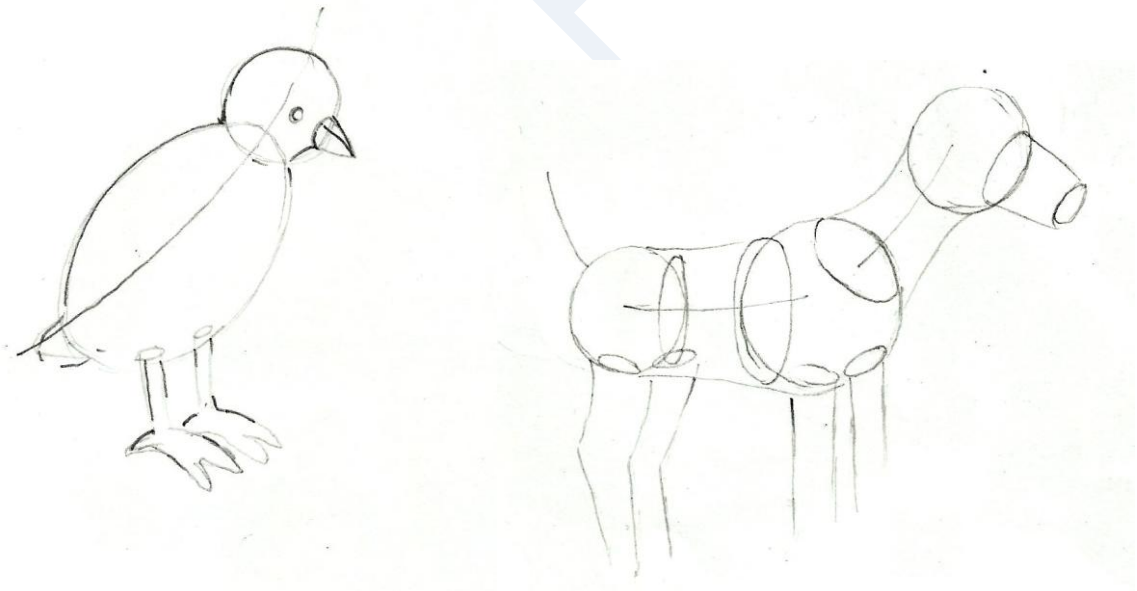


Fig.70: Adding details with basic forms

And when the forms are drawn, the backside of the dog and chick are indicated. Even though we cannot see all sides in the finished drawing, the subject should appear three-dimensional. Therefore, one should have proper knowledge of planes and volume of an object. To finish the drawing, we simply refine the outlines and add a little fluffy texture to the downy chick see fig.71 (a) and (b).

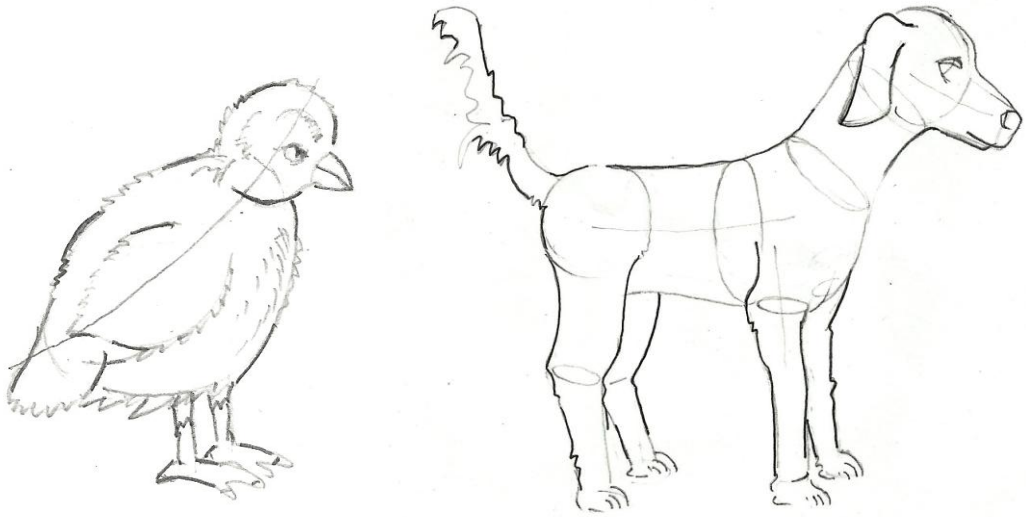


Fig. 71(a): Completing drawing

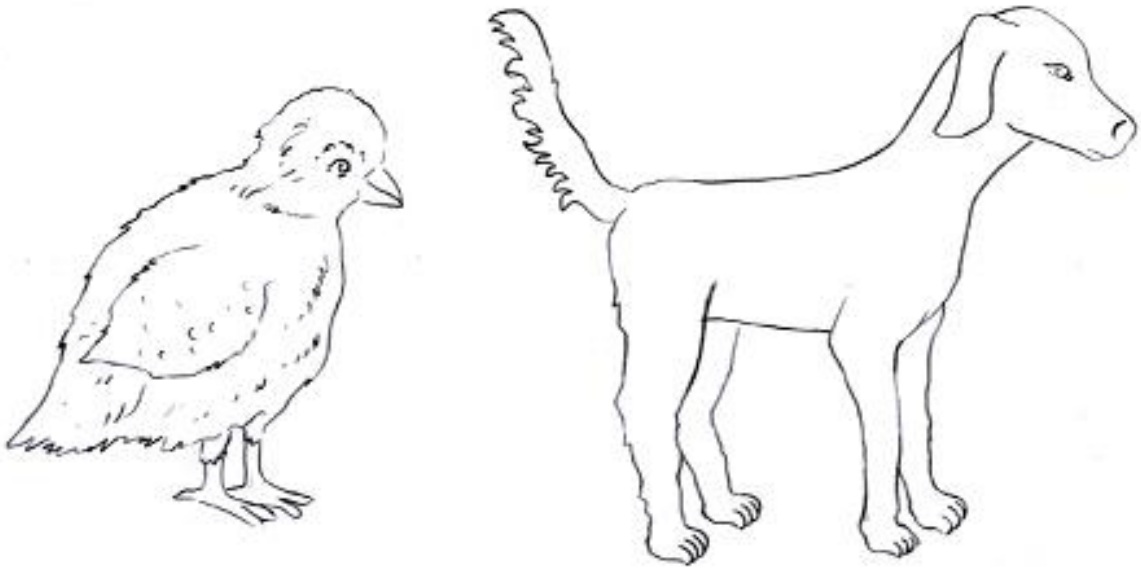


Fig. 71(b): Final drawing

Lecture-6

Seeing the shapes and forms:

At this point, we need to train our eyes and hand by practicing drawing objects around us. We set up a simple still life—like the arrangement below—and look for the basic shapes in each object. We should not be afraid to tackle a complex subject; once we have reduced it to simple shapes, we can draw anything!

Step one (cube and cylinder):

We begin with squares and a circle, and then add ellipses to the jug and sides to the book. We see that the whole apple is drawn, not just the part that will be visible. That's another example of drawing through basic lines and geometrical shape.

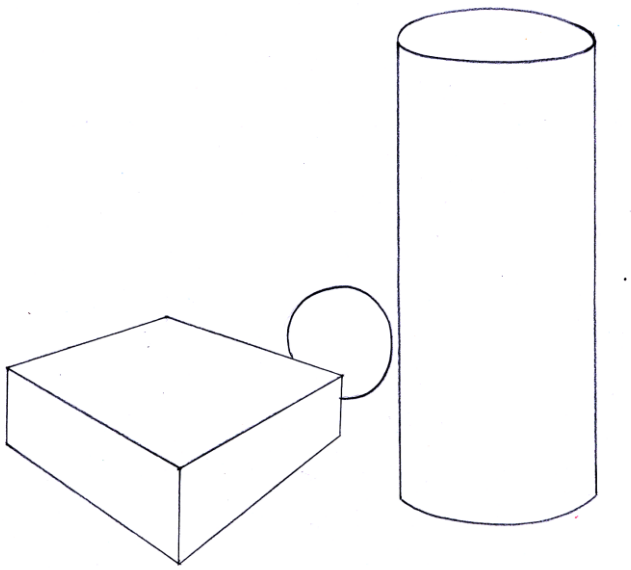


Fig.72: Drawing a book and a jug with basic forms

Step two (cube and cylinder):

Next we add an ellipse for the body of the jug, a cone for the neck, and a cylinder for the spout. Also pencil in a few lines on the sides of the book, parallel to the top and bottom, to begin developing its form. Once the basic form is ready we go for final touch up see step three fig.74.

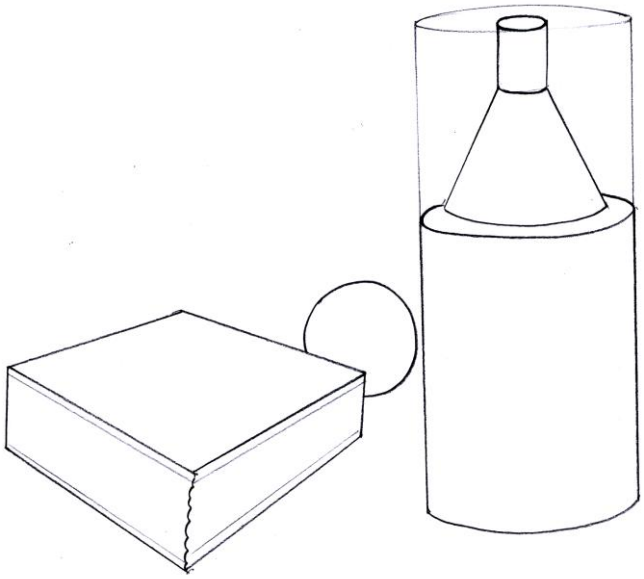


Fig. 73: Adding details to the book and jug with basic forms

Step three (cube and cylinder):

Finally we refine the outlines of the jug and apple, and then round the book spine and the corners of the pages. Once we are satisfied with your drawing, we erase all the initial guidelines in order to complete the drawing.

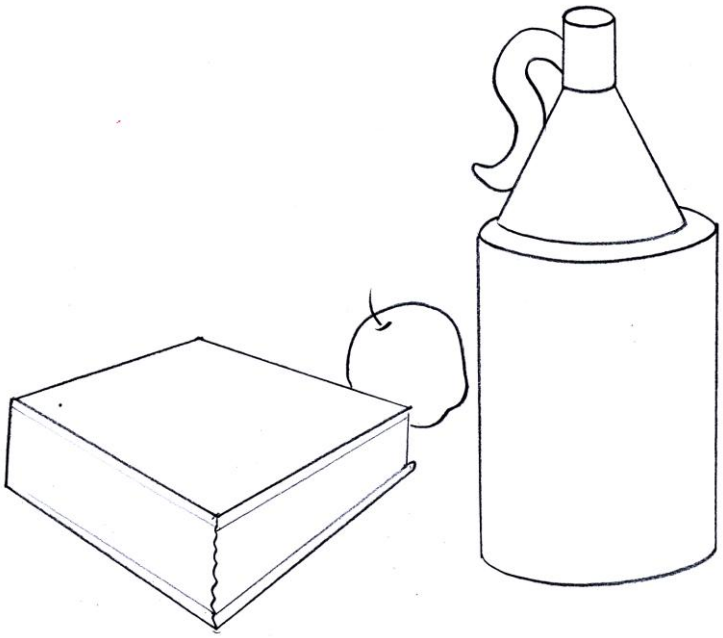


Fig. 74: Completing the drawing of the book and jug

In our next drawing we are taking a car as reference. Here we are using two point perspective in order to have accuracy of the drawing. All the basic lines of this drawing have been generated from two points' e.g.vp1 (R) and vp2 (L).or the lines of the drawing converging into two point as we have discussed this in module 2

Step one (Car):
Even a complex form such as Old ambassador car is easy to draw if we begin with the most basic shapes. At this stage, we ignore all the details and draw only squares and rectangles. These are only guidelines, which are generating from two points on the horizon which we can erase when our drawing is completed, therefore draw the lines lightly and do not concentrate in making perfectly clean corners. But, don't forget to use two point perspective to get proper realistic view as shown in the fig.75.

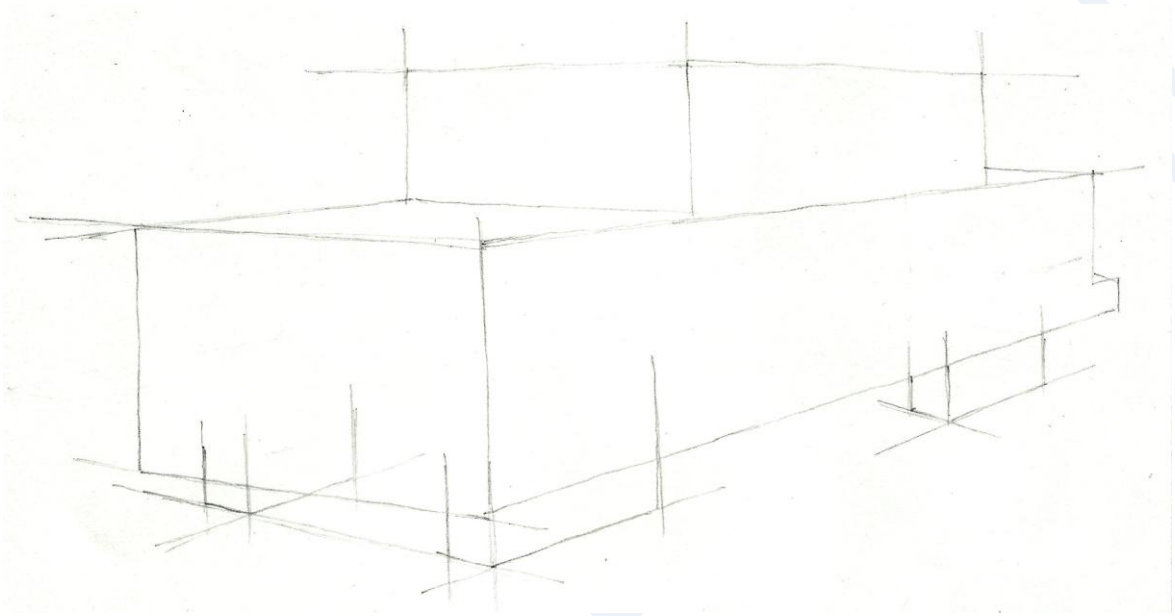


Fig. 75: Drawing a car with basic lines

Step two (Car):
Using those basic shapes as a guide, we start adding more squares and rectangles for the headlights, bumper, and grille. Start to develop the form of the windshield with angled lines, and then sketch in a few straight lines to place the door handle and the side detail and the wheel space etc.

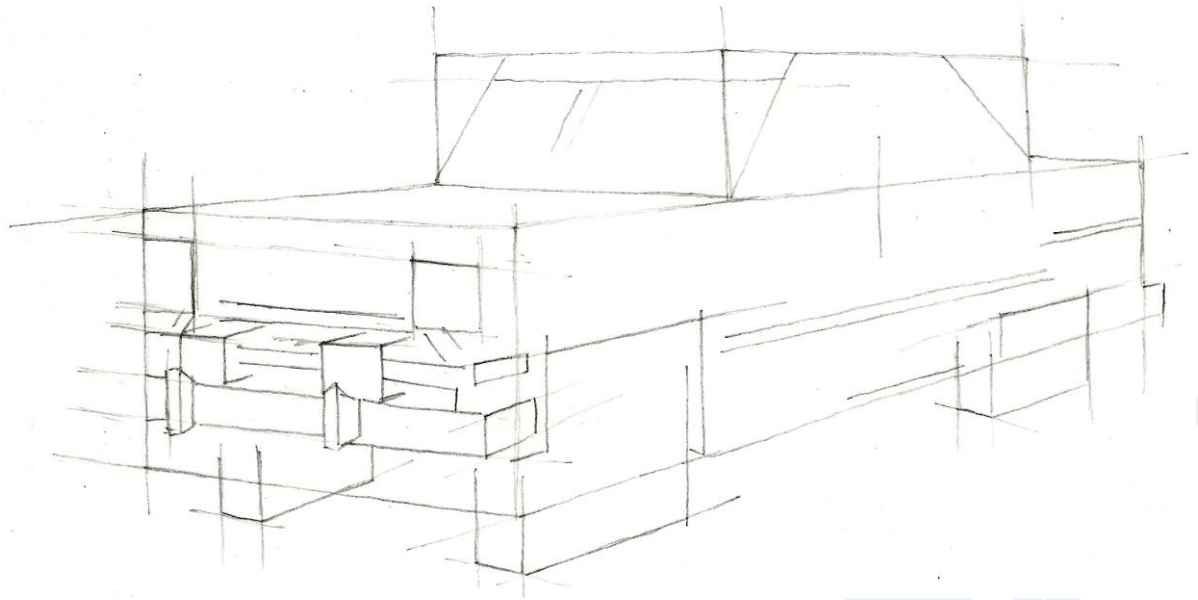


Fig. 76: Adding details to the car with basic forms using perspective

Step three (Car):

Once we have all the major shapes and forms established, begin rounding the lines and refining the details to conform to the car's design. Our guidelines (perspective) are still in place here, but as a final step, we can clean up the drawing by erasing the extraneous lines.

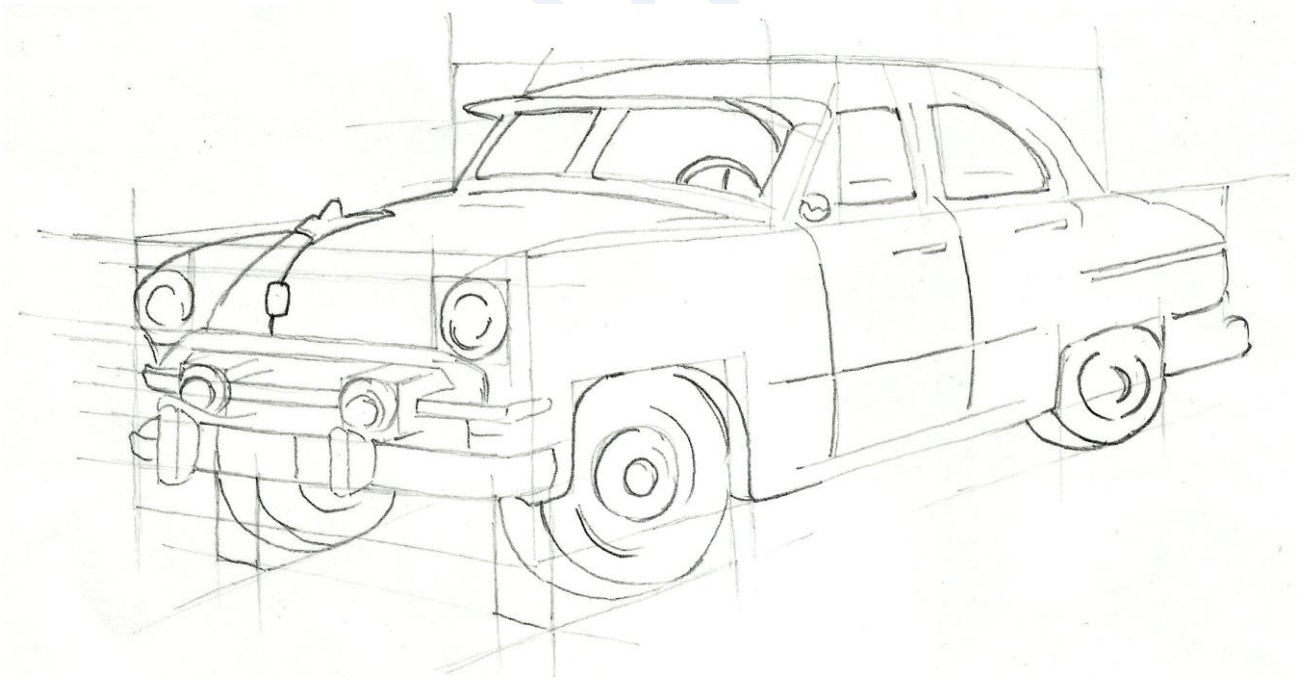


Fig.77: Completing the drawing of the car

Developing form:

Values tell us even more about a form than its outline does. Values are the lights, darks, and all the shades in between that make up an object. In pencil drawing, the values range from white to greys to black, and it is the range of values in shading and highlighting that gives a three-dimensional look to a two dimensional drawing. Focus on building dimension in your drawings by modelling forms with lights and darks.

Lecture-7

Sketching the Shapes:
First lightly sketch the basic shape of this angular wedge of cheese.

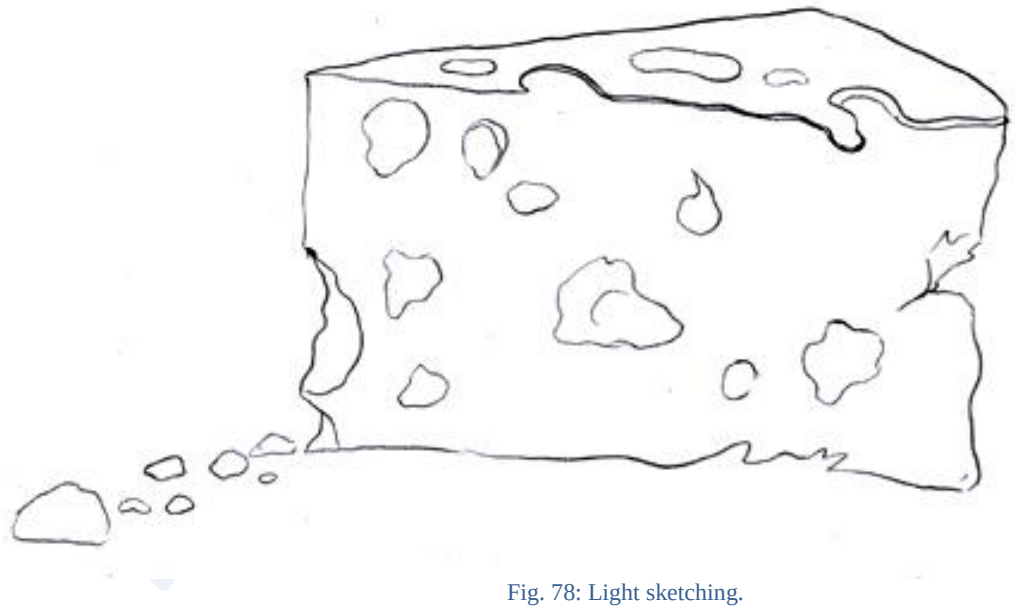


Fig. 78: Light sketching.

Laying in Values:
Here the light is coming from the left, so the cast shadows fall to the right, tightly shade in the middle values on the side of the cheese, and place the darkest values in holes where the light does not hit.

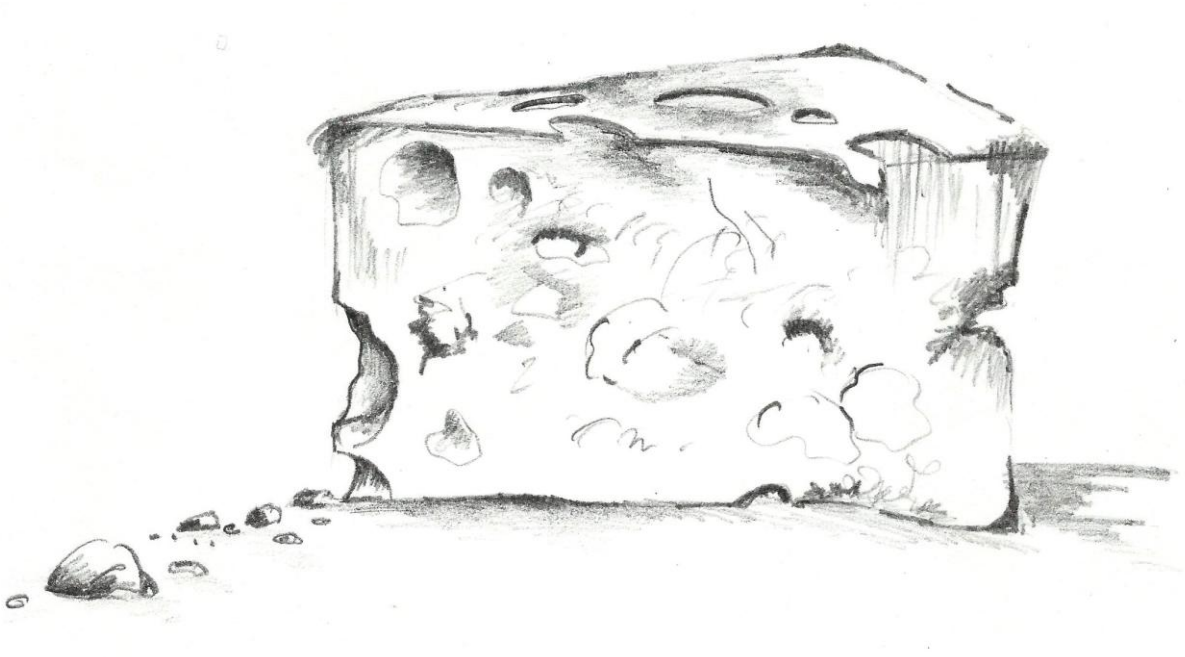


Fig. 79: Laying values to light sketching to give 3-D effect of the subject.

Adding Shadows:

Look at a bunch of grapes as a group of spheres. We can place all the shadow areas of the grapes (form shadows) on the sides that are opposite the light source. Then can also block in the shadows that the grapes throw on one another and on the surrounding surface (cast shadows).

Fig. 80: Adding shadows to sketches based on the source of light.

Drawing Cast Shadows:

Cast shadows are important in drawing for two reasons. First, they anchor the image, so that it does not seem to be floating in air. Second, they add visual interest and help link objects together. When drawing a cast shadow, we must keep in mind that its shape will depend on the light source as well as on the shape of the object casting it. For example, as shown below (Fig.81), a sphere casts a round or elliptical shadow on a smooth surface, depending on the angle of the light source. The length of the shadow is also affected: the lower the light source, the longer the shadow.

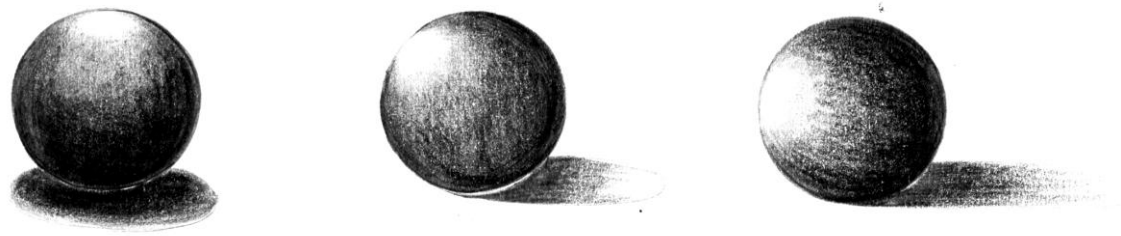


Fig. 81: Casting shadows.

Understanding Lights and Shadows:

To develop a three-dimensional form, we need to know where to place the light, dark, and medium values of your subject. This will depend on your light source. The angle, the distance, and the intensity of the light will affect both the shadows on an object (called "form shadows") and the shadows the object throws on other surfaces (called "cast shadows"). We might want to practice drawing form and cast shadows on a variety of round and angular objects, lighting them with a bright, and a direct lamp so that highlights and shadows will be strong and well-defined.

Highlighting:

We either "save" the white portion of our paper for the brightest highlights or "retrieve" them by picking them out with an eraser or painting them on with white gouache.

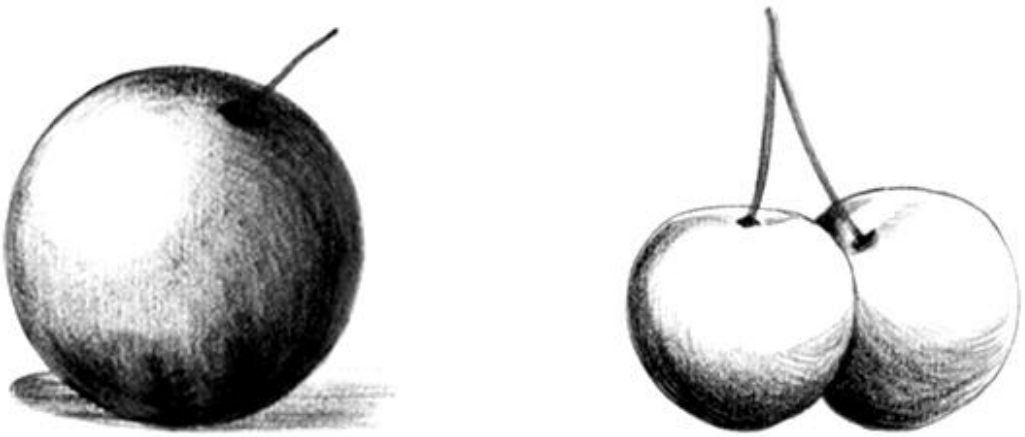


Fig.82: Adding highlight

Shading:

The middle values of these gaps have been shaded with a couple of swift strokes using the side of a soft lead pencil. Then increase the pressure on our pencil for the darkest values, and leave the paper white for the lights.

Shading Consistently:

If we have only one light source, make sure that all the highlights are facing a single direction and all the shadows are oriented in the opposite direction. If we mix them up, our drawing would not be believable.

Getting to Know our Subject:

Quick, "thumbnail" sketches are invaluable for developing a drawing. We can use them to play with the positioning, format, and cropping until we find an arrangement we like. These are not finished drawings by any means, so we can keep them rough.

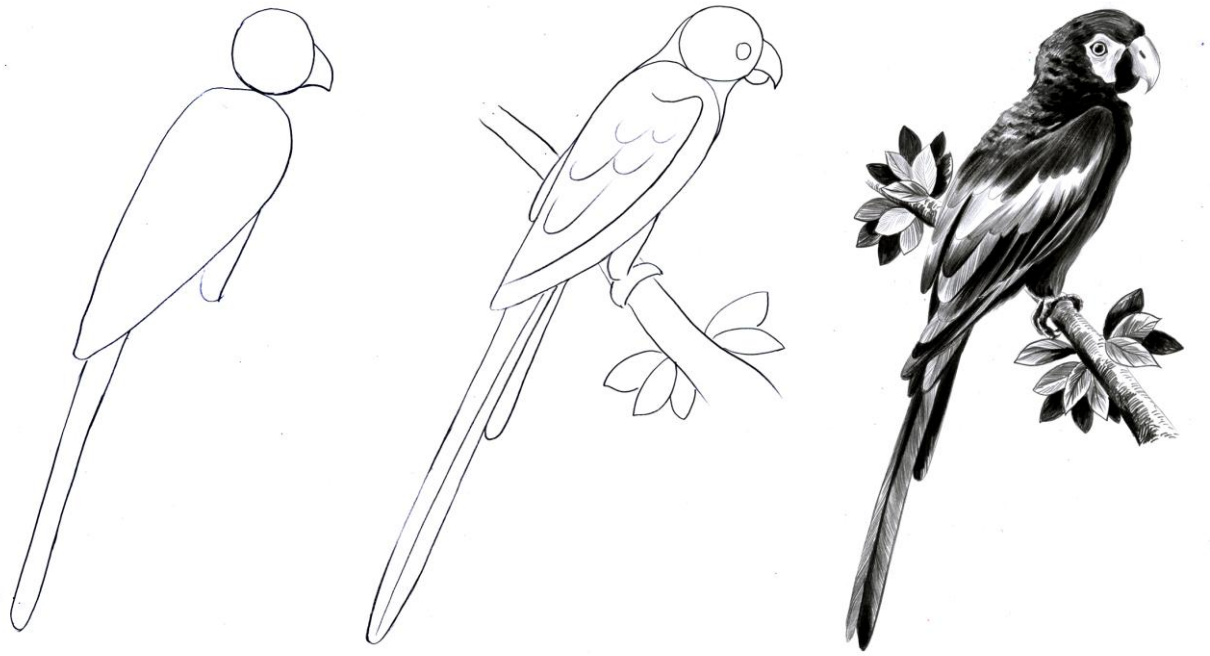


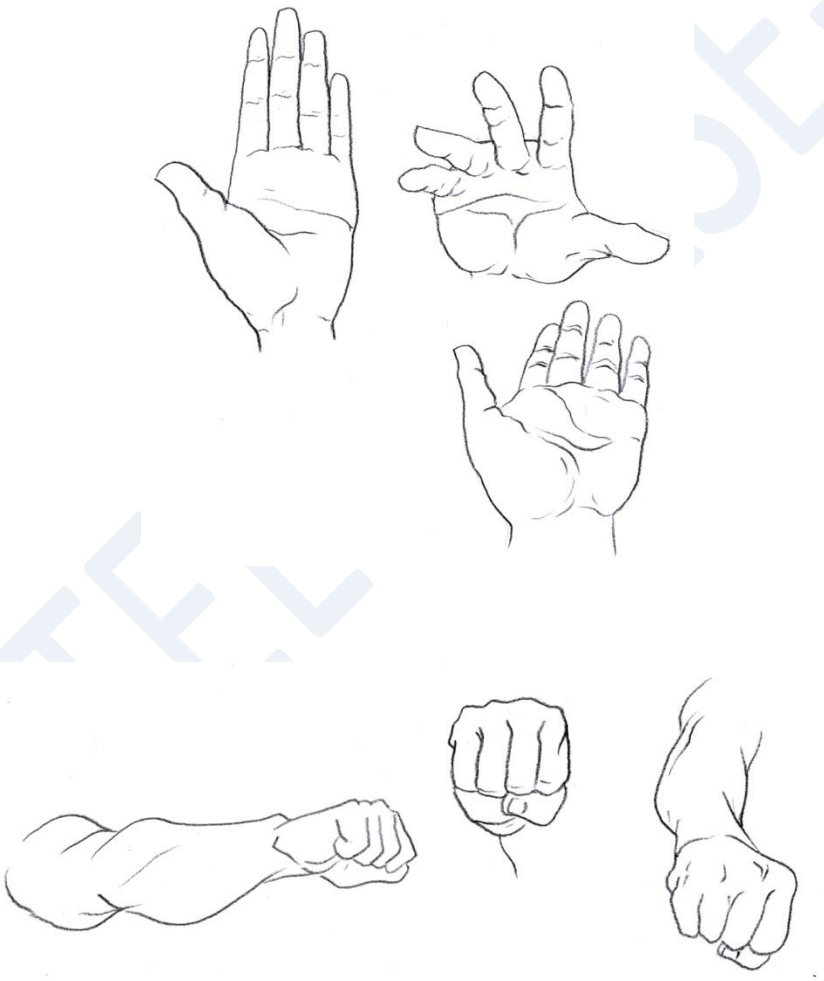
Fig.83: A quick thumbnail of a parrot and a detailed rendering

Question & Answer

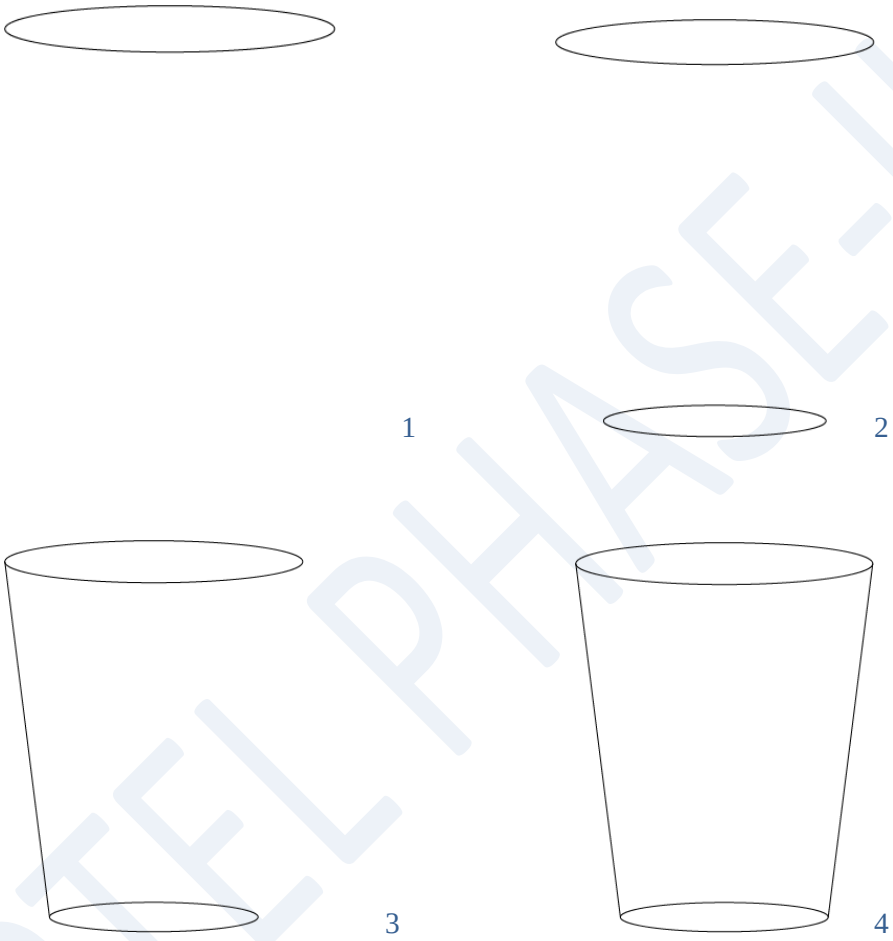
Module 5

1. What do you mean by foreshortening? Explain with illustrative example

    - See lecture 1, and see the illustration given bellow



3. As we know how we can draw an ellipse from a circle (using two point perspective). Using this basic shape (circle) how we can make a product sketch? Show by an illustration.



- See lecture 1 ellipses. by taking reference (fig.52) from the lecture 1 showing another illustration of a product drawing.

Module 6

Lecture-1

Representation of basic 3-dimensional forms: Cubes, cylinders, cones, spheres etc. in different combinations and sizes to understand principles of perspectives.

Foreshortening:

Lines or surfaces parallel to the observer's face show their maximum size, as they are removed away from the observer's face, they appear increasingly smaller.

Fig. 84: The tube seen end-on will appear as a full circle and no sides will be seen.

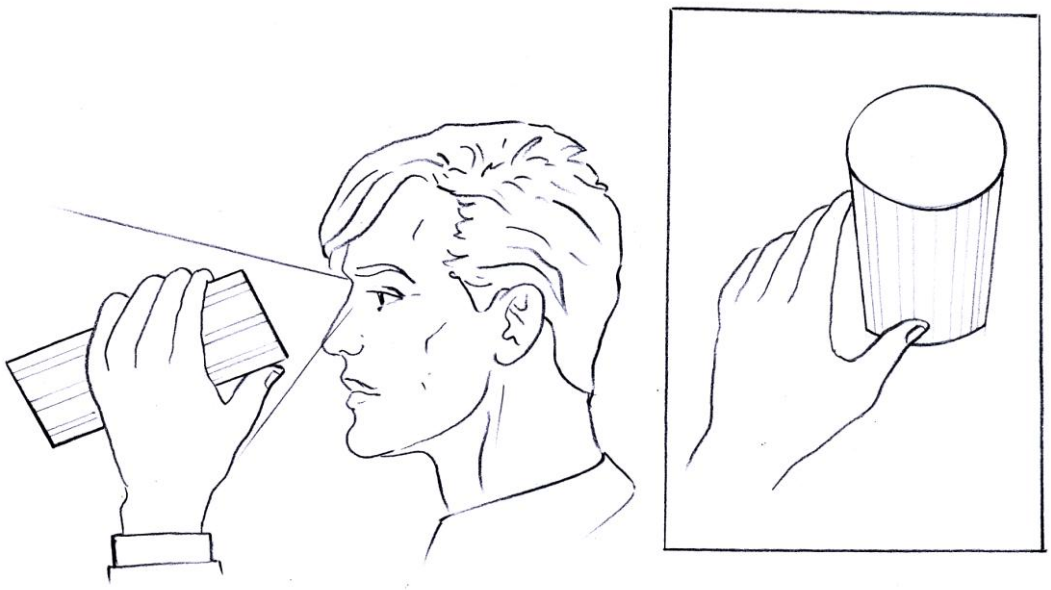


Fig.85: When it is pivoted slightly the circle foreshortens and appears as an ellipse, the sides which were totally foreshortened begin to appear.

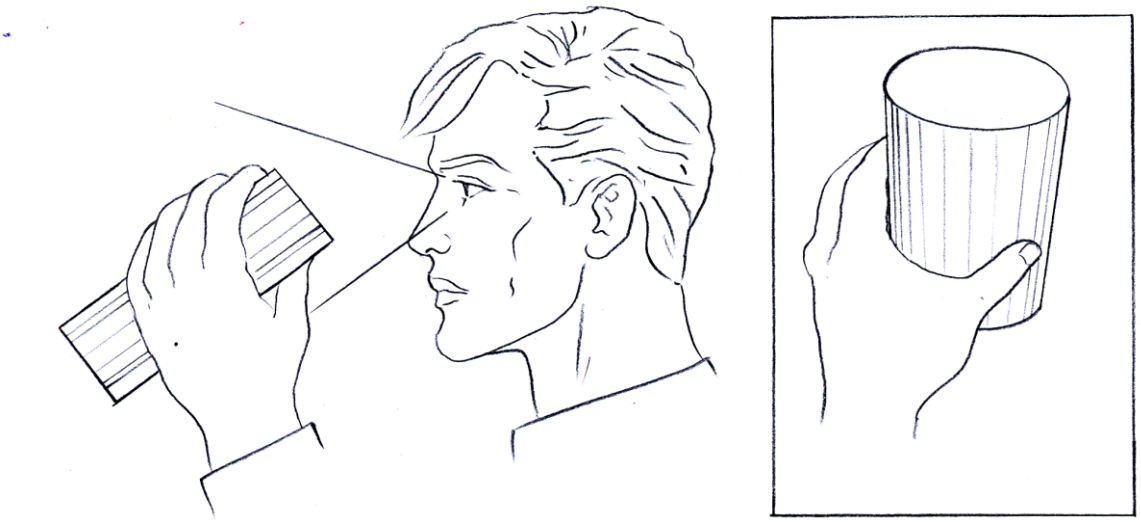


Fig.86: The ellipse foreshortens even more and the sides appear longer.

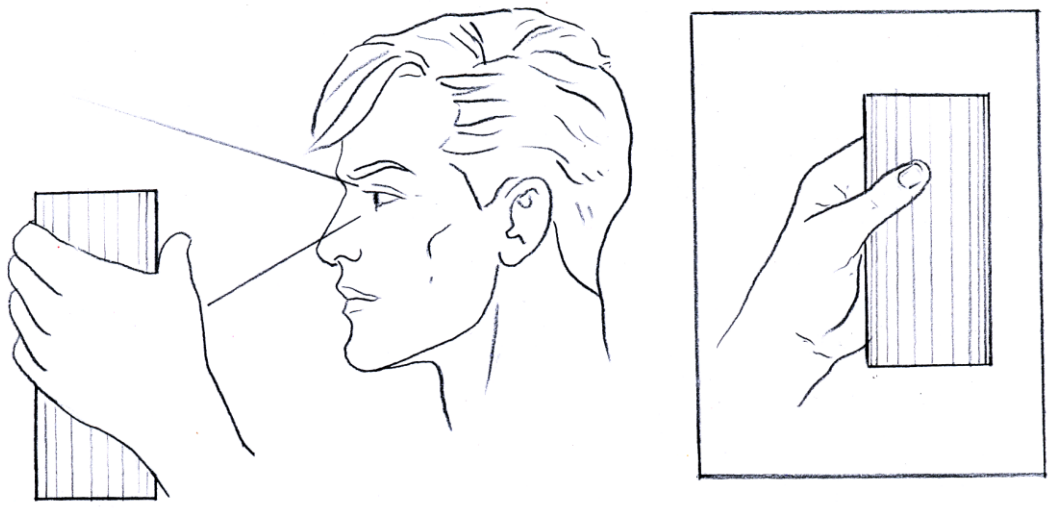


Fig.87: Finally the circular top foreshortens to a simpler line and the sides are completely visible as straight lines.

Overlapping:

This obvious and very simple technique not only shows which objects are in front and which are in back, it is also a very special way of perceiving sense of depth and space in drawings. We can easily observe the depth confusion when the objects overlap each other.

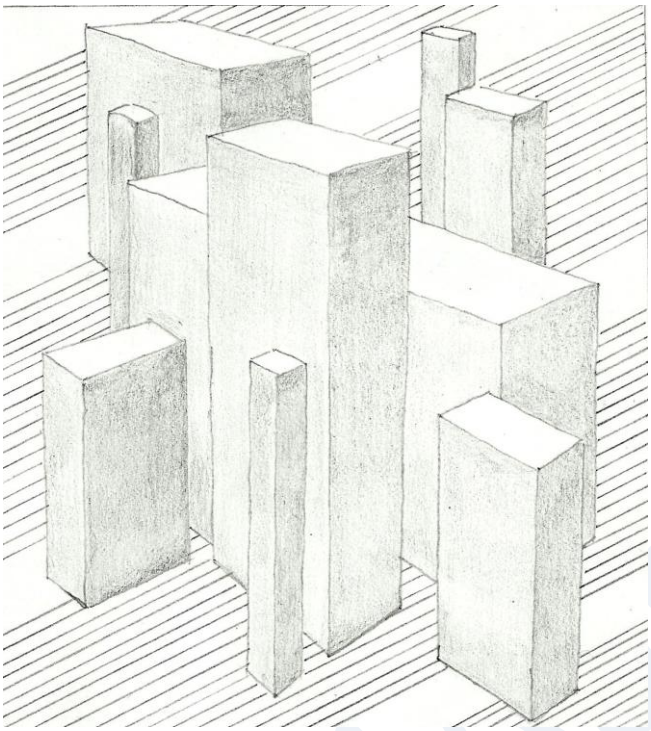


Fig.88: Overlapping- 1

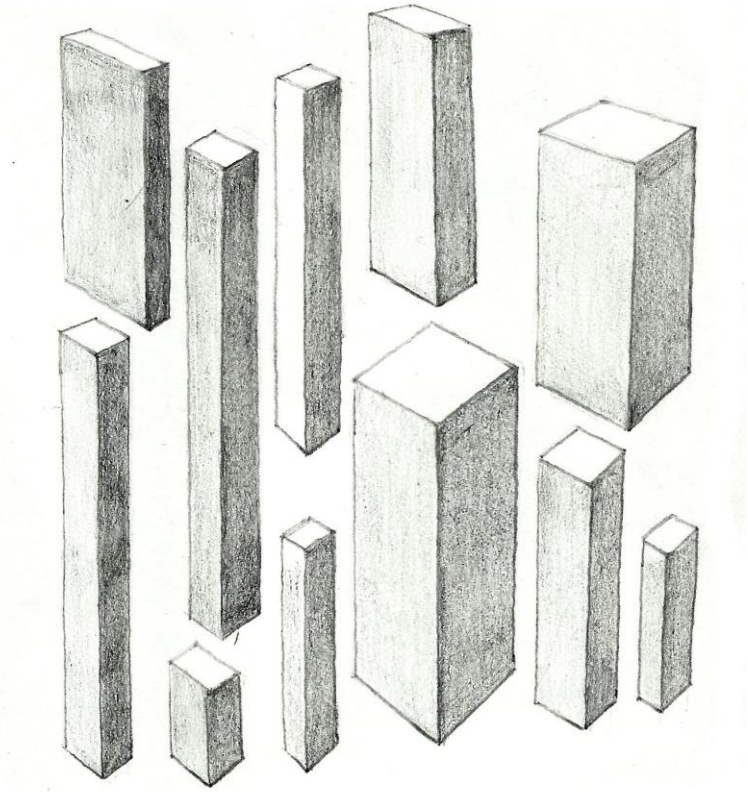


Fig.89: Overlapping- 2

Shades and shadows:

We can understand the shapes and structures of three-dimensional objects only when we see them in some form of light falling on to them. It is really the shades and shadows of this light that make the image readable. So working with light shades and shadows will dramatically help us understand the drawing from and with sense of a third dimension.

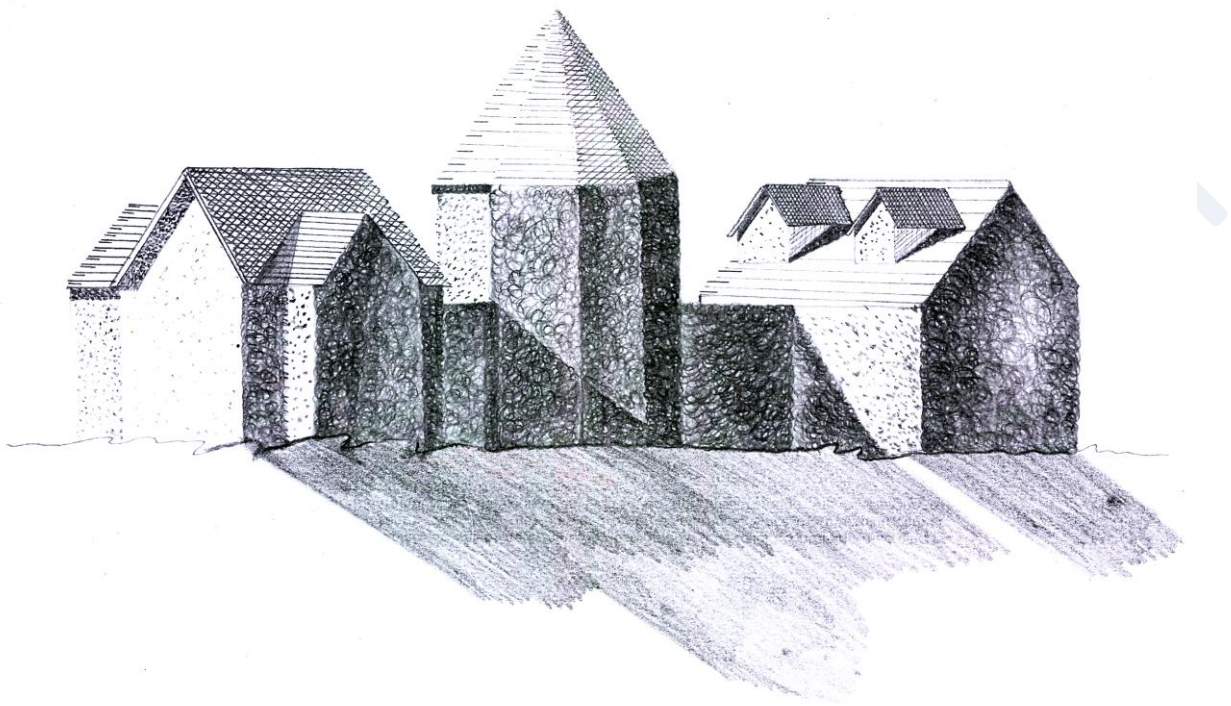


Fig.90: Shades and shadows.

Lecture-2

Cone of vision:

A perspective drawing will look correct only if our direction of vision, angle of vision of the subject is relatively fixed. This means a drawing with a limited field of vision. This field is usually called the cone of vision because of the infinite number of sight lines which radiate in a cone-like pattern from the eyes. In reality, these are actually the rays of light coming from the subject to the eyes. The angle of this cone is between 45-60 degrees as it is the capability of the human eye to clearly visualize objects inside of this range. A anything outside this range shall appear dizzy or not clear to the eyes. If a greater angle is applied in drawing, it is called a moving cone of vision – and the picture will be distorted.

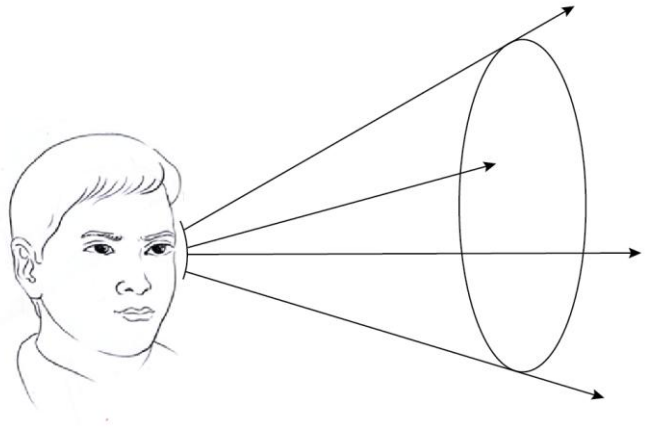


Fig.91: General cone of vision (Distinct vision)

When we generally look at anything we normally concentrate on a succession of spots or centres of interest each of which is fixed by a sight line at the exact centre of the cone of vision. This line is usually called the centre line of sight of the centre of the cone of vision. When we look through a telescope or hold a pencil at such an angle that it appears to be a point it is actually located at the centre line of vision.

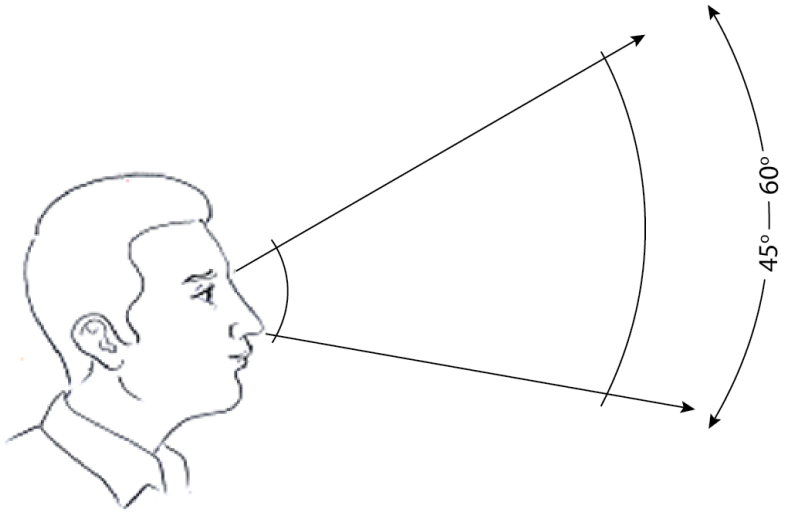


Fig.92: Angular limit of human vision across vertical order.

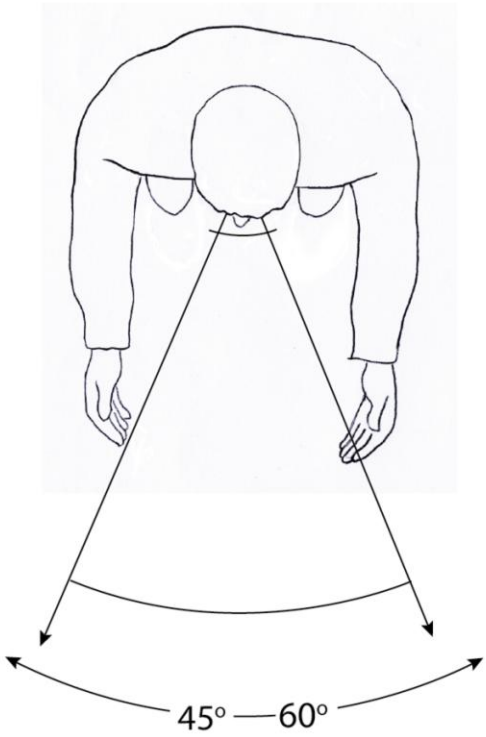


Fig.93: Angular limit of human vision across horizontal order.

In order to understand a perspective drawing, a picture plane must be imagined between the observer and the subject. This plane has a constant right –angle relationship with the central visual ray. Thus, so when we draw an object which is above, below or straight ahead, we imagine viewing it through a picture plane which is perpendicular to our central visual ray in the cone of vision.

Why appearances differ from reality:

By applying the notions of lines of sight through a picture plane to simple views of pencils of equal length we can more precisely define the visual basis of Diminution, Convergence, Forshortening and Overlapping, and explain diagrammatically why appearances of objects appear different from reality than in drawing.

Lines of sight applied through picture for Diminution

Diminution:

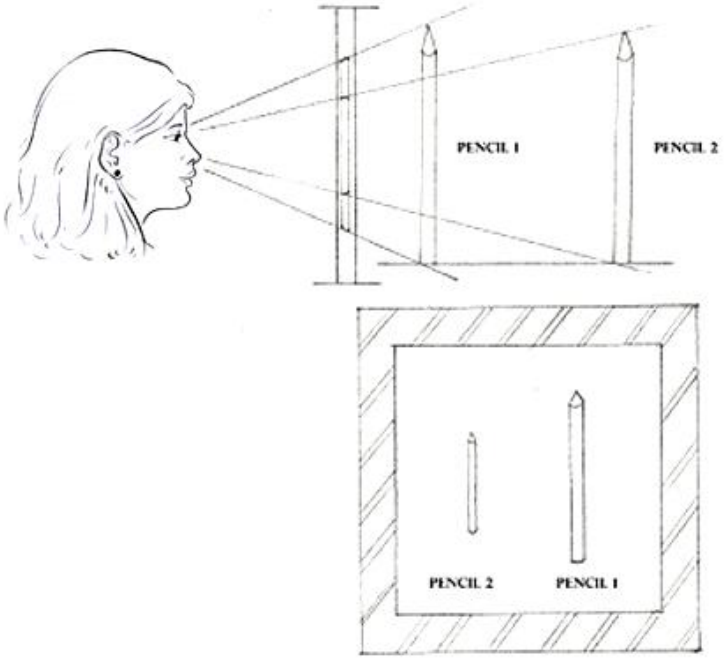


Fig.94: looking at pencils kept in parallel positions which are vertical to each other.

Objects of equal size appear to reduce in size as their distance from the observer increases. The pencils here are not exactly in line but are kept vertically. Pencil 2 appears smaller than pencil 1; this is because of the way the lines of sight leading from eye to object intersect at the picture plane.

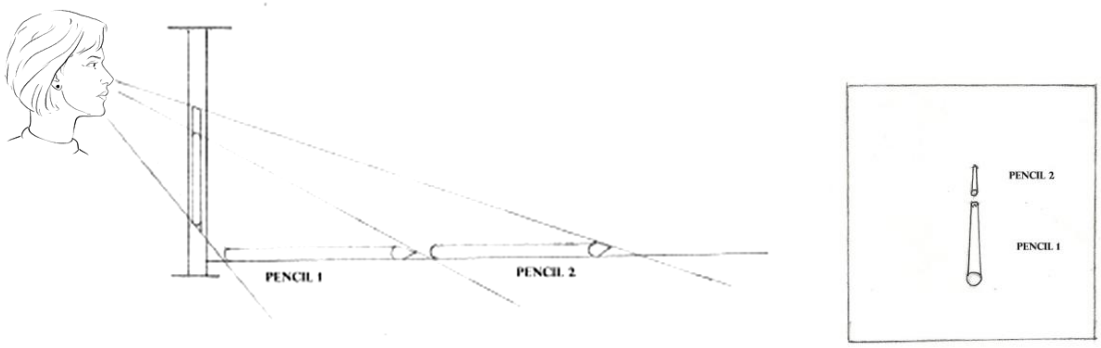


Fig.95: looking at pencils kept in line with each other.

Here the pencils are lying in one line on a table top , one after the other pointing away from the observer, the pencil which is more further appears and is drawn shorter , the reason is similar to above like the ways the line of sight intersect at the picture plane.

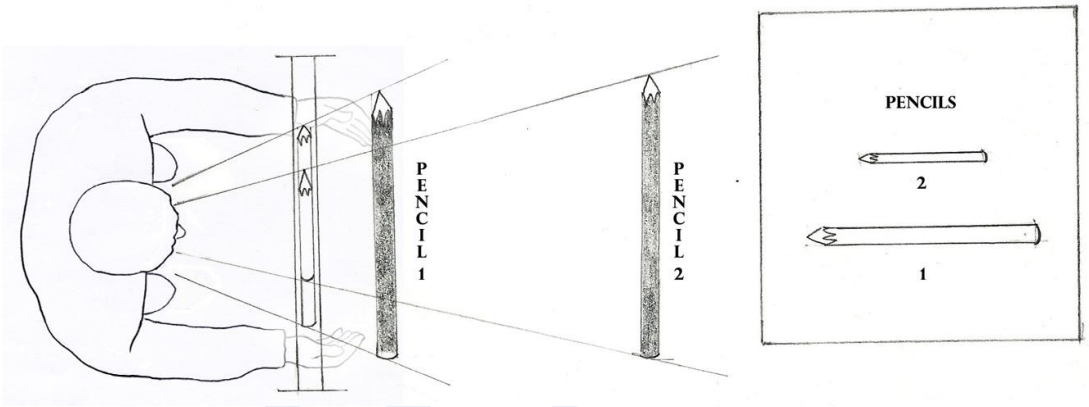


Fig.96: Looking at pencils kept in horizontal position in line with each other.

In this cases both the pencils are lying down but parallel to the observer's eyes, the pencil closer to the observer is drawn as it would appear and the one further from the observer's eyes is drawn as it would appear. The principle is the same as above.

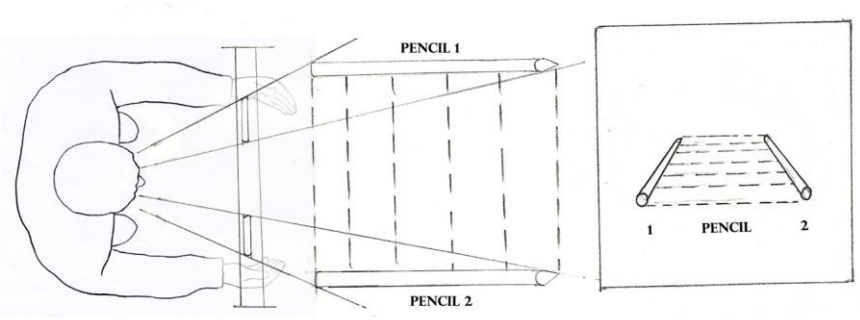


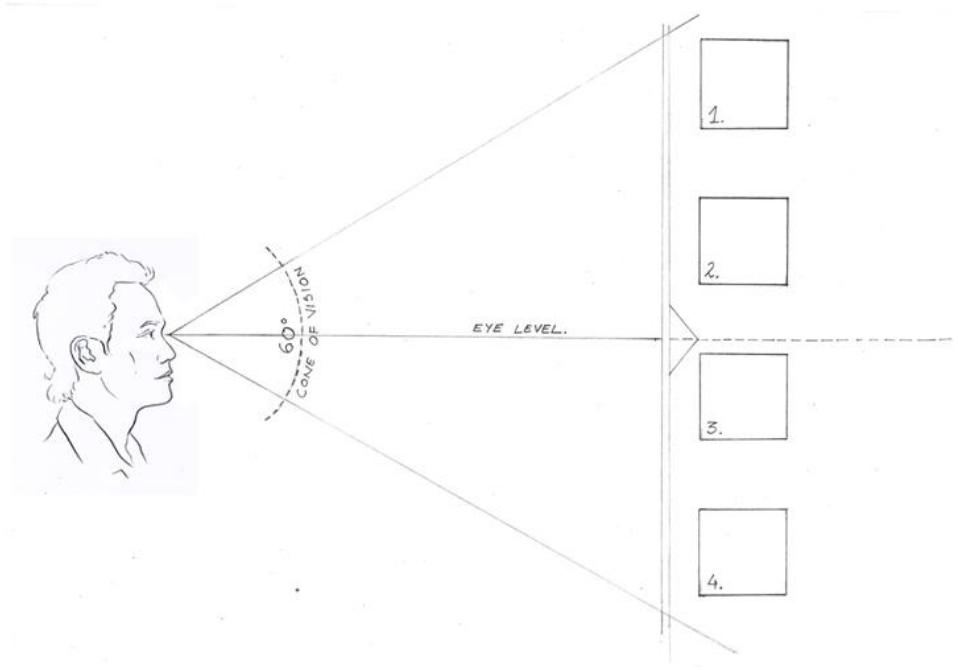
Fig.97: Looking at pencils kept in parallel position to each other.

Lecture-3

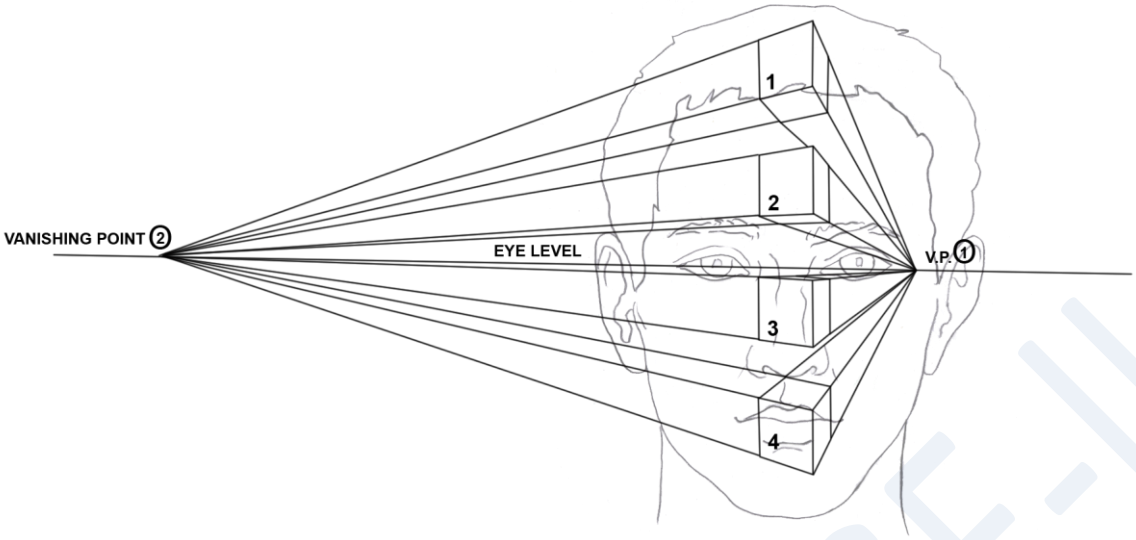
Convergence:

Parallel lines appear close to each other as they move away from the observer. Here in this example the pencils are lying parallel to each other pointing away from the observer; they appear to converge and are so drawn (shown in fig.97). This is also due to the principle of line of sight being intersected at the picture plane.

The eye level not only dictates but is synonymous with the vanishing line for horizontal lines fig.98, a,b.



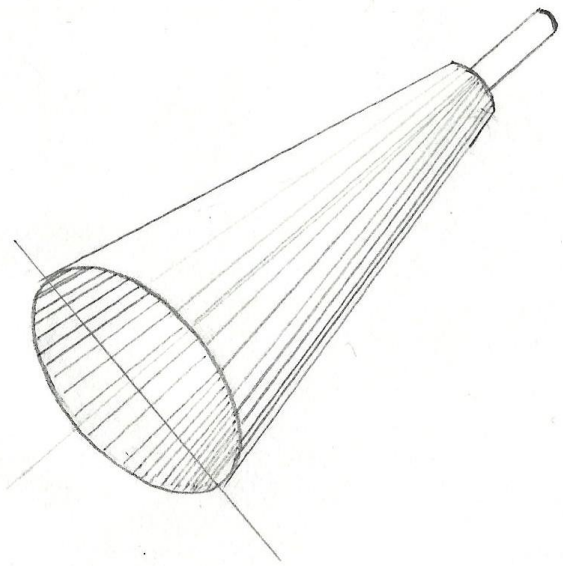
a



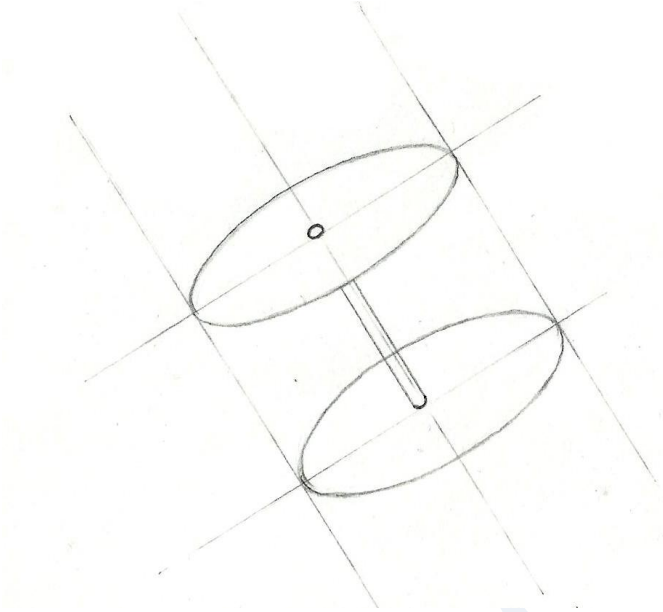
b

Fig.98, a, b: Looking straight out.

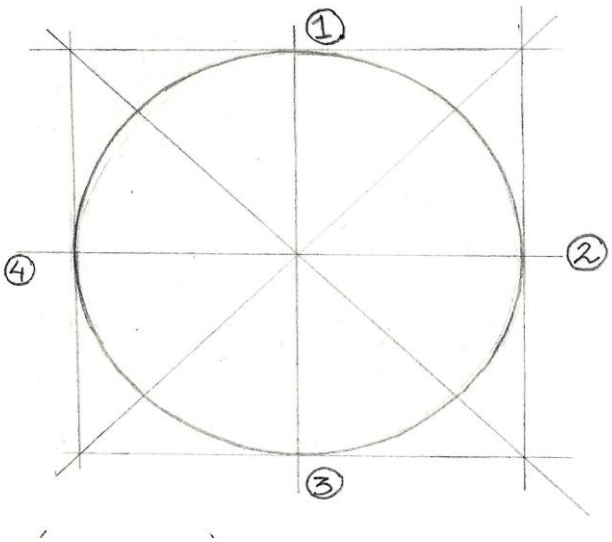
This viewpoint is the most frequent and mostly used while looking onto objects, looking straight out.



(a)



(b)



(c)

Fig.99: cones, cylinders and Circles

In the fig.99 we demonstrate how a circle may seen as ellipse while looking at it from a different angle and while tilted little bit from its axis in the space it appears as ellipse (see fig. 98, a) in the cone drawing.

The coin appears to be a perfect circle only when seen a front face, when rotated around an axis parallel to the face of observer, it changes from round to a thin ellipse and then finally turns out to be a horizontal line fig. 100.

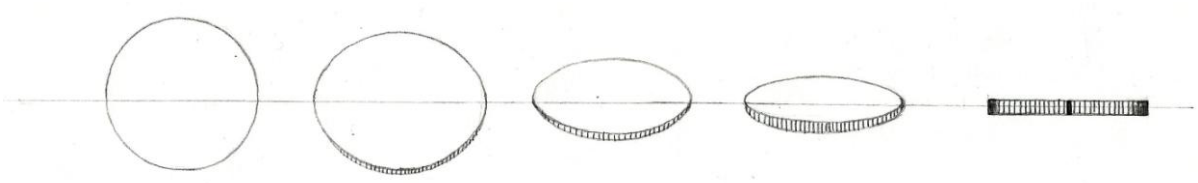
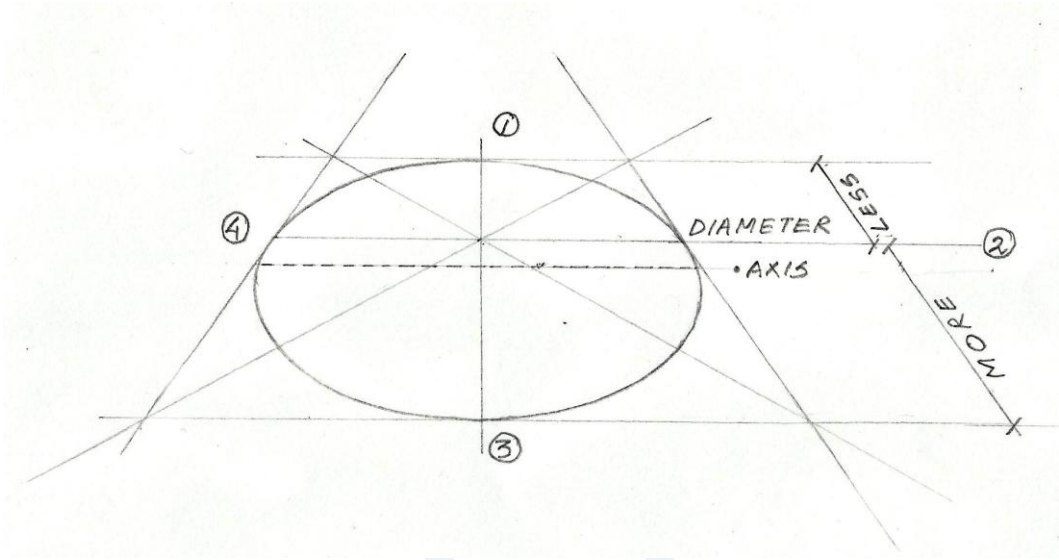


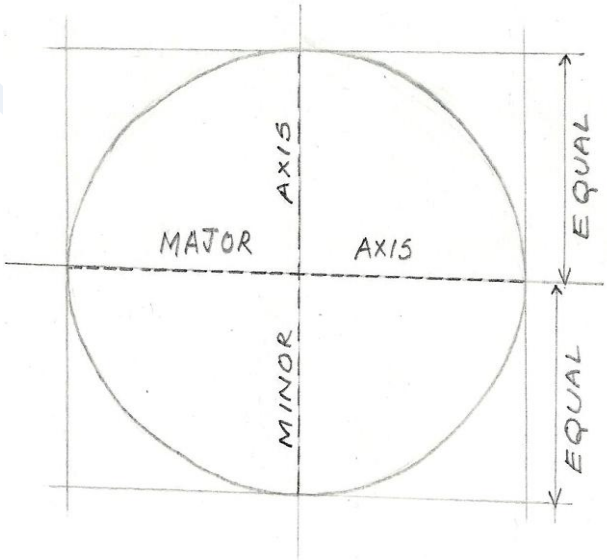
Fig.100: Transformation of a coin from circle to a straight line.

Stood upright and rotated around a vertical axis it appears to be almost similar phenomenon as above.

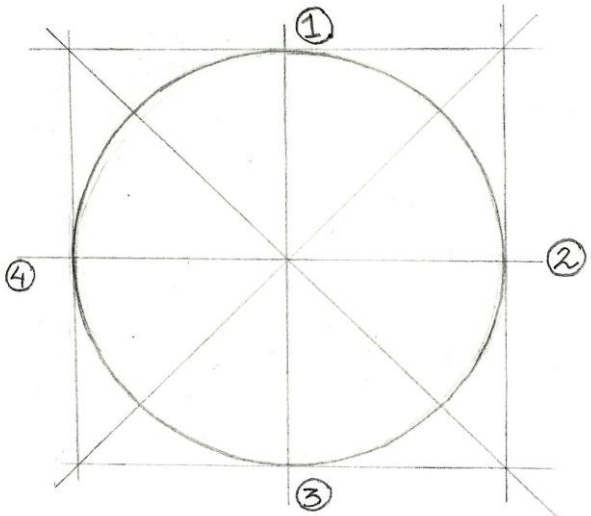
Major Axis, Minor axis:



(a)



(b)



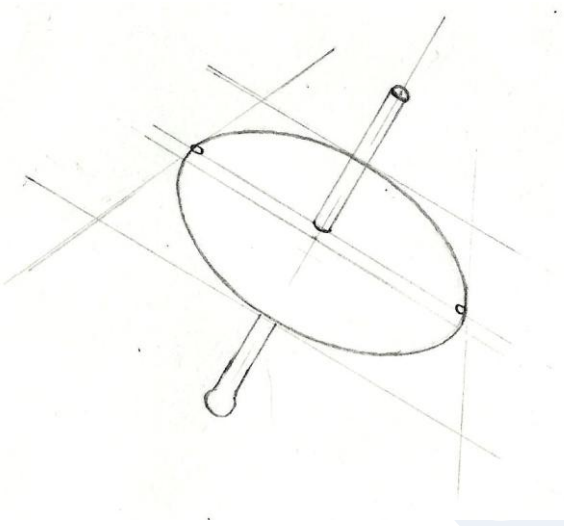
(c)

Fig.101: Ellipse from a circle.

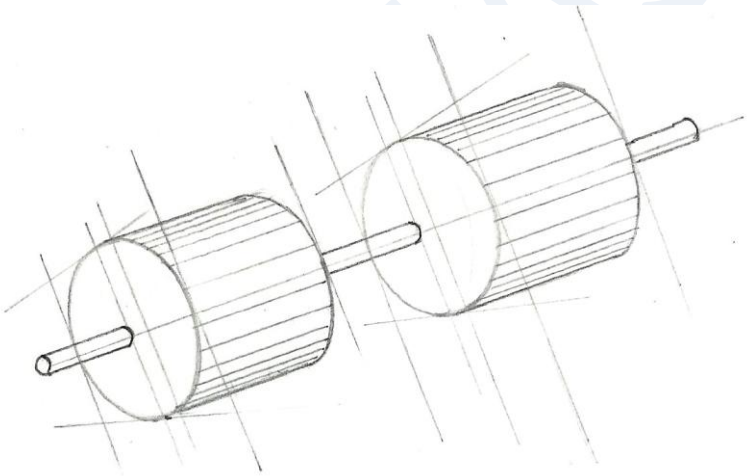
A perfect circle can always be drawn inside a perfect square, the centre of the square also being the centre of the circle. The circle in perspective can also be drawn inside of a foreshortened square, drawing the diagonals will hence forth also give the centre of the circle.

Major axis of an ellipse is just the midline between the top and bottom lines and minor axis is the vertical midline between the two side lines, so combining the above we see that the circle's diameter falls slightly behind the ellipse's major axis, minor axis is the line which is the most foreshortened line among all the vertical lines or is just the centre most line in the making.

Cylinders: bellow the cylinders are showing in terms of two point perspective from different angles so, basically you are seeing ellipse not the proper circle as mentioned earlier.



(a)



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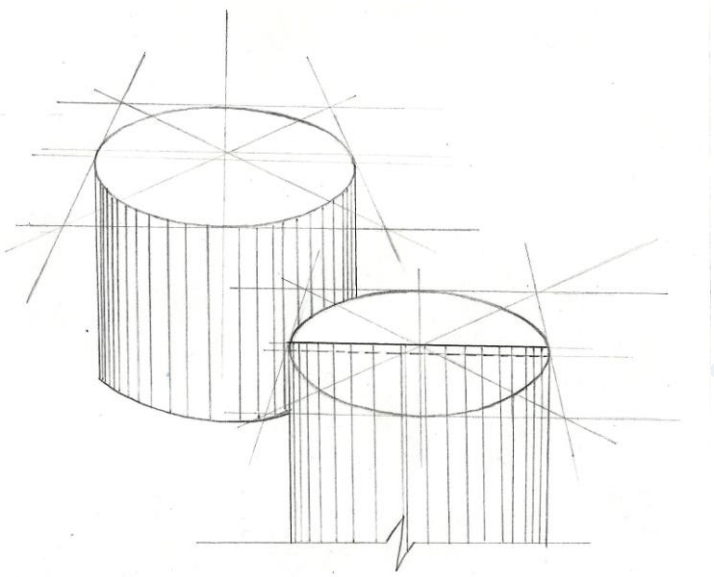
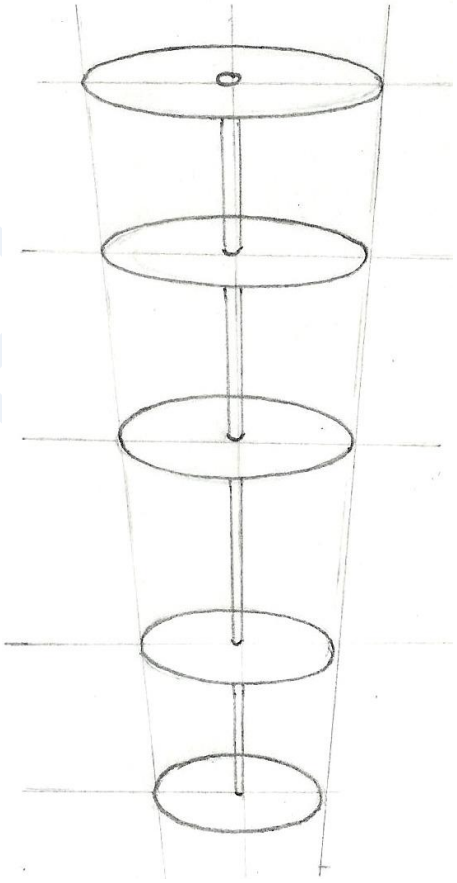


(c)



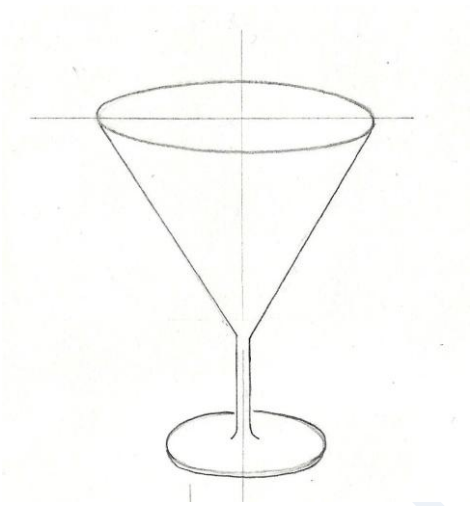
(d)

Fig.102: Drawing of a cylinder through ellipse.

Regardless of the position or angle of an ellipse, its major and minor axes always appear at right angles, to each other. When drawing a cylinder its centre line must always be drawn as an extension of related ellipse's minor axis. Therefore this centre line always appears at right angle to the major axis of the ellipse associated with it, but this centre line connects to the ellipse at the centre point of the circle and not to the centre point of the ellipse.

Cones:

Drawing cones is similar to the drawing of cylinders; the centre line of a cone is also the extension of the axis of the ellipse related with the cone. It usually lies at right angle to the ellipse's major axis, and it connects to the ellipse not at the ellipse's centre point, but behind it.



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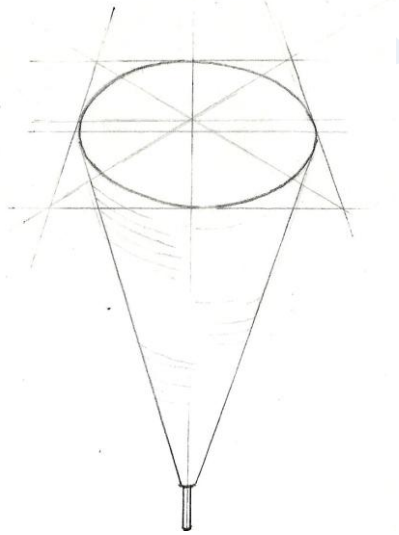

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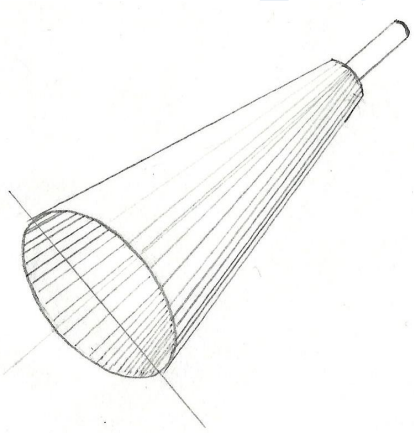

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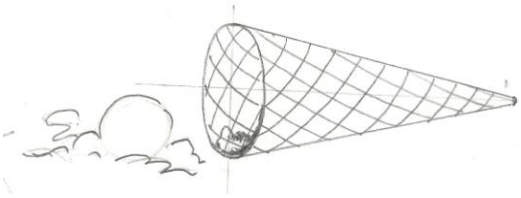

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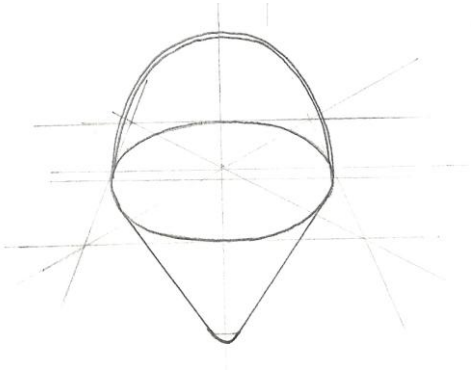

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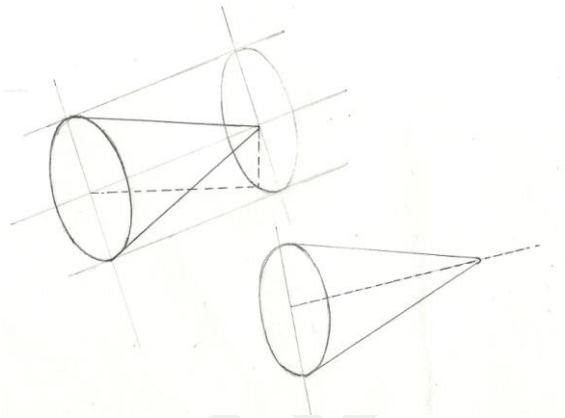


(f)

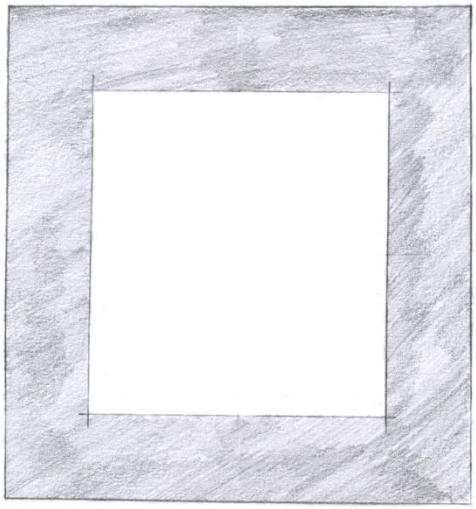
Fig.103: Drawing of a cone.

The cone within the cylinder naturally has its centre line parallel to the table top, therefore the cone's apex is in the air, to draw the cone resting on the table its apex must drop to a level at the table top so that its centre line also falls approximately to the dotted line. Therefore cones lying on any plane have their centre line inclined to the plane on which they are lying.

Question & Answer

Module 6

1. Draw a still life by using simple grid showing in lecture 4.



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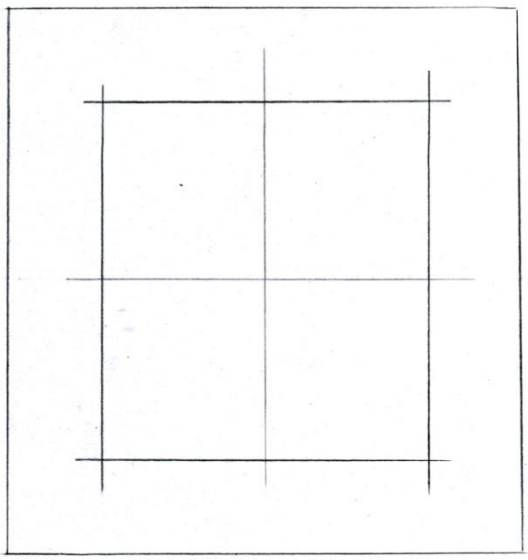

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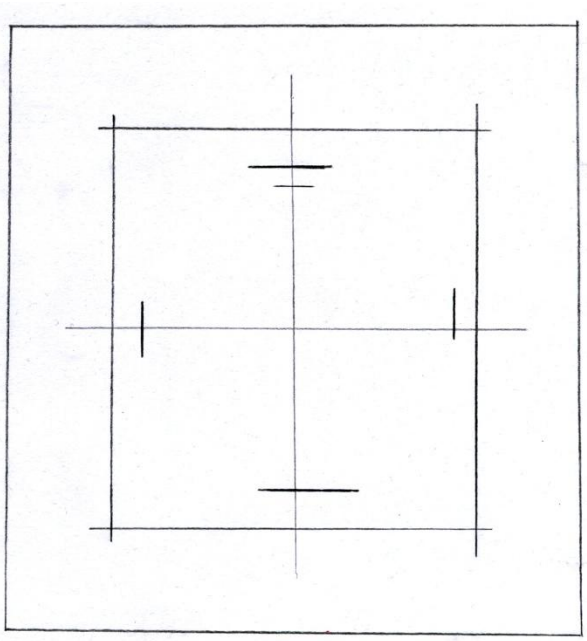

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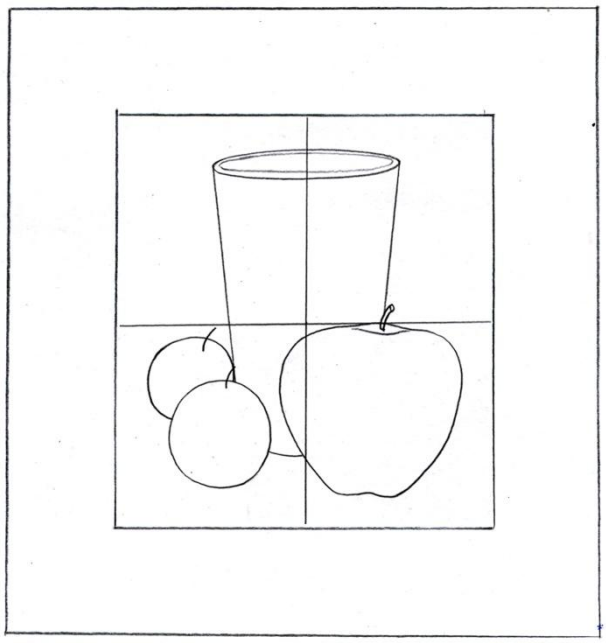

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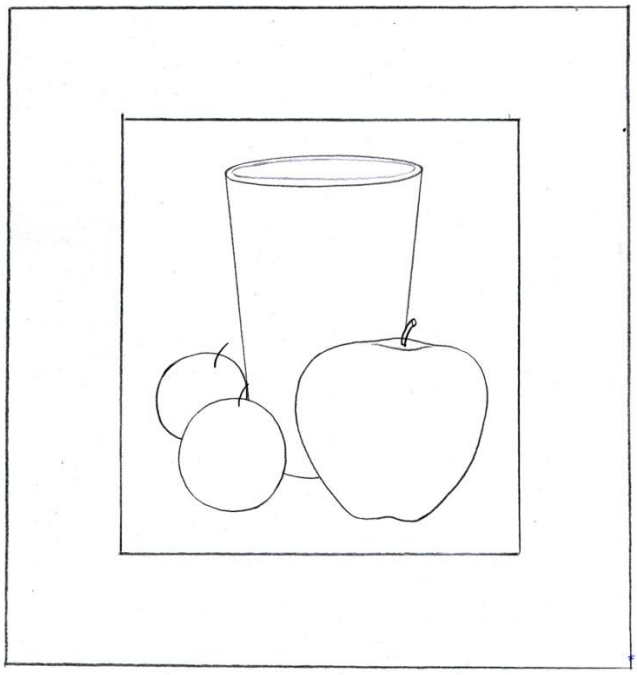

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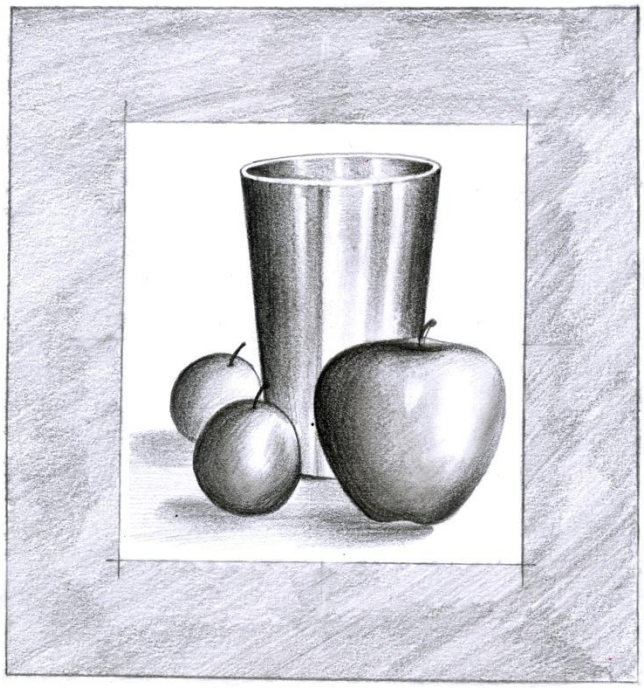
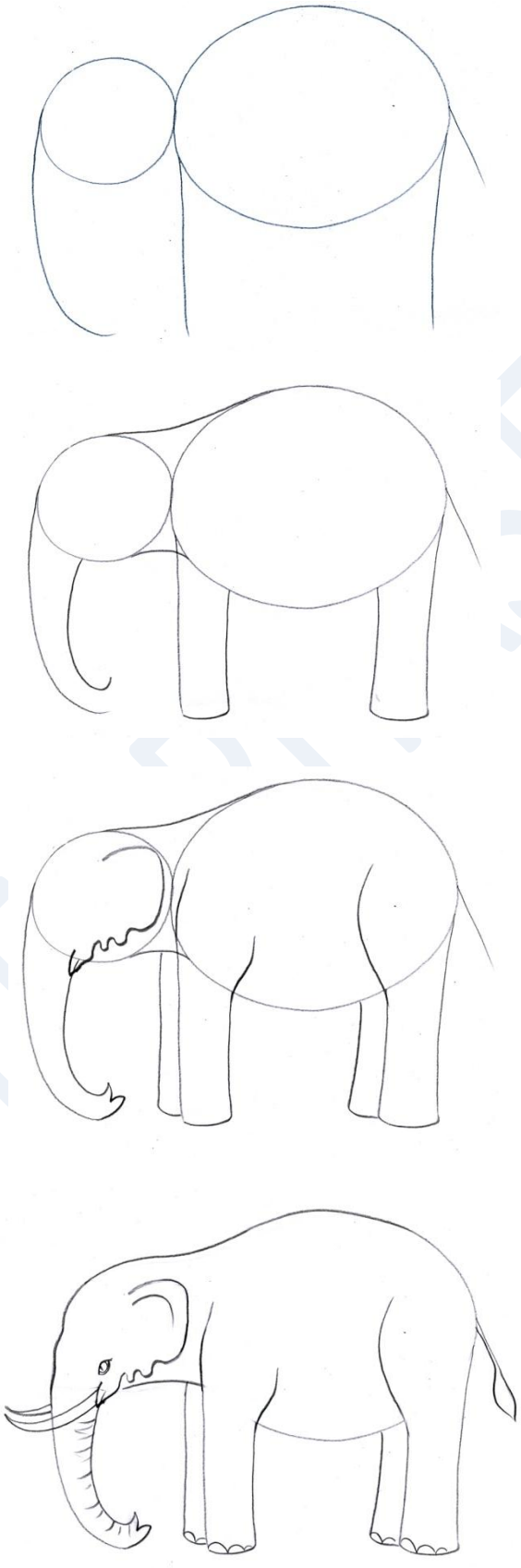


(6)

2. Draw an animal figure by using basic geometric shape



Module 7

Lecture-1

Memory drawing and quick sketching.

Sketching from memory is a discipline that produces great compositions and designs. Design, after all, is a creative process that involves recollection and imagination. Sketching from memory deals with the recollection of images, perhaps from many different situations, and rearranging them to make a new composition. It takes imagination to put these images together; and new images (sketches) are often the vehicles that help the designers visualize their new designs. Therefore, design effectiveness to some extent depends on the speed and fluidity of recollection and sketching. Sketching from memory requires a resourceful memory bank and the only way to fill up the memory bank is through creative seeing and on-the-spot sketching. The more we sketch, the better we can remember.

Many times we can draw trees and buildings well but find it difficult to tackle cars or people. The reason is very simple. We seldom spend time observing people and cars; we seldom observe the relationship between different parts, how they interact, how they affect textures, and how they modulate light and shadow. The physical eye is very similar to a camera's lens. It captures everything without any variation. Our eyes must search, identify, compare, isolate, and filter_everything we see. This, in combination with a methodical way of sketching, will make sketching from memory an easy and natural task.

A process:
Depending on the subject matter we want to sketch. The first step in sketching from memory is to draw a horizon line across the entire page. Pick a center point on this line and draw two lines from the center towards the lower left and right corners. Then draw a second horizontal line across the page approximately one inch below the first horizon line. At the two points where this lower line intersects with the two diagonal lines, draw two vertical lines about 3 to 4 inches high. This move establishes a framework for all the recalled objects. The distances between the reference lines are all relative and must be judged with your eyes from trial and error. Likewise, the scale and size of the objects can be adjusted accordingly.

We must first establish a reference frame (a way to contain the image area).
1. Horizon: i.e., eye level
   Ground: foot level
The assumption is that the normal distance between horizon and ground is approximately five to six feet.

2 .this establishes a reference scale.

• The center of vision/vanishing point (VP) can be anywhere along the horizon.
• Diagonal perspective lines radiate from the center toward the four corners of the picture frame.

3. VP is at the middle
4. VP is off to one side.
5. Creative use of visual scale: (fig.104)
a: Take the distance between horizon and ground as five feet.
b: Repeat the same distance on the ground line three times to get 15 feet.
c: Transfer the 15 feet up as vertical reference line.

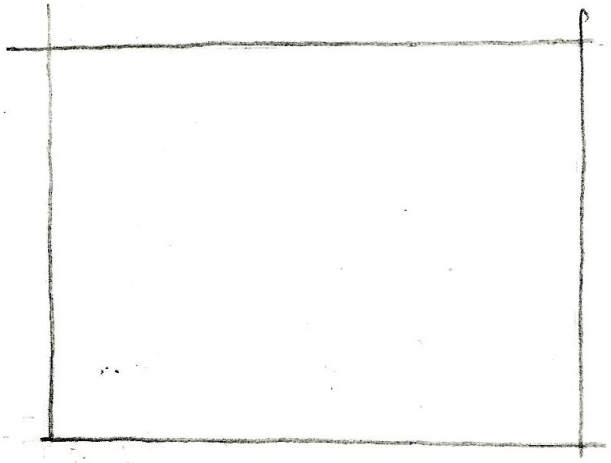
6. A: Use initial 15-feet reference to approximate the bottom of the tree canopy.

B: Put a larger human figure in front to suggest the depth of space.

C: Extend horizontal lines forward to suggest pavement.

D: Use initial 15-feet reference to construct the side of the building. Set the window at a certain height.

E: Use initial 15-feet reference to construct shorter buildings.



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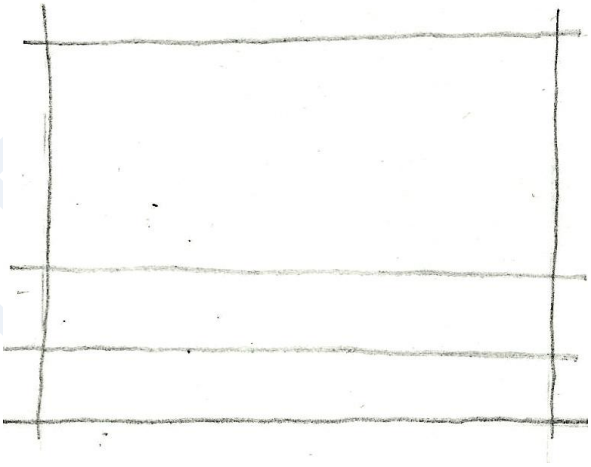

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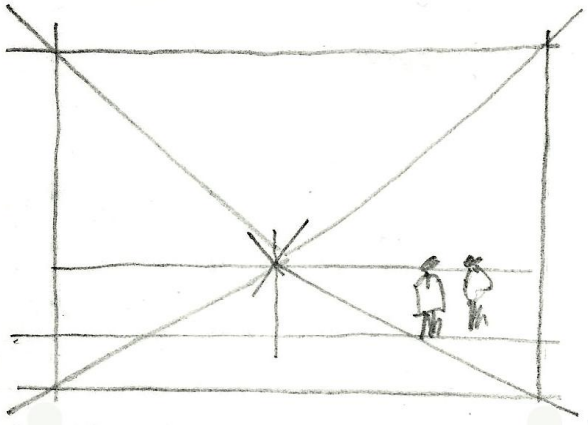

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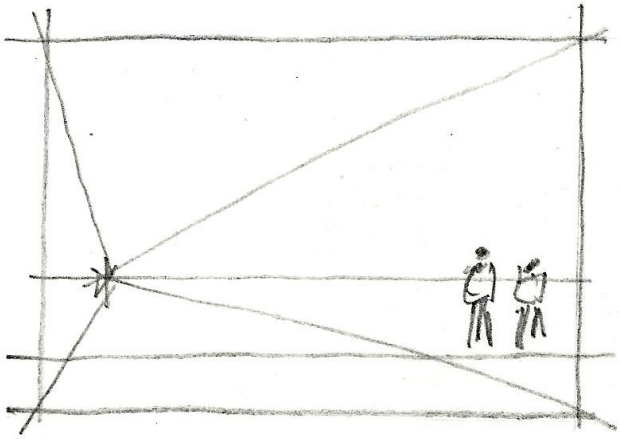

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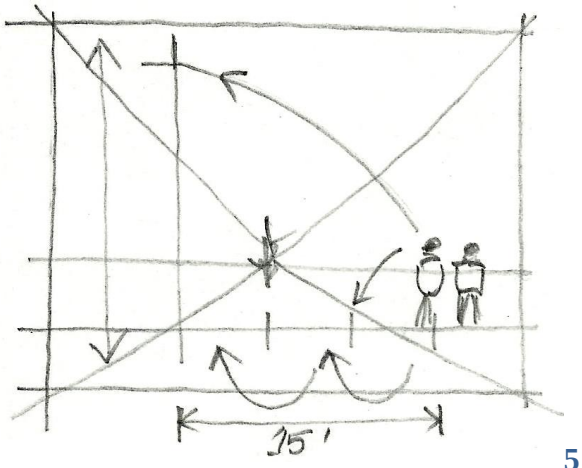

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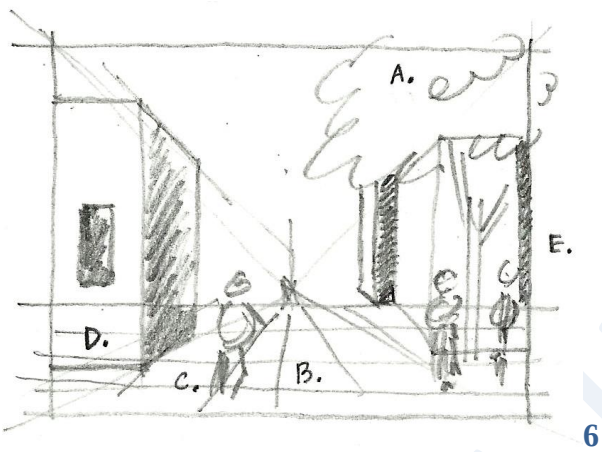


Fig. 104: Memory drawing and quick sketching.

Lecture-2

Another process:

Quick sketching and memory drawing:

Memory drawing is a skill set one has to develop through constant practice of usual objects one sees around and remembering them by remembering the key points of highlight lines one remembers in them. One of the key to memory drawing is to understand what are the points in that object, which make the object so special, and to remember them and try to replicate in a scene.

1. Recall Images: Here is it expected that one would try to re-gather information about an image and try to understand and recognise it in the way one observed it in some other location.

2. Select /Scale images: In this stage it is very important that one selects the scale or size of the image to sketch so that the whole composition reflects originality and a sense of reality in the image.

3. Sketch: This phase is about sketching the object after having practiced various means of developing forms, understanding nature, light, shadows, perspective etc. Which are mentioned in earlier chapters.

4. Compose and rearrange: This phase is about rearranging or creating the type of composition we want to have in the drawing sheet. Any disproportion in the earlier stages should be rectified in this stage to get the best clear picture.

5. Sketch and visually judge: Also it is important to visually judge the possibility of the appropriateness of the image / picture while sketching it.

All this steps if taken care of will help us generate good sketches and images rendered from memory.

An example of a Step by Step process would be:

Fig. 105: Steps in memory drawing and quick sketching.

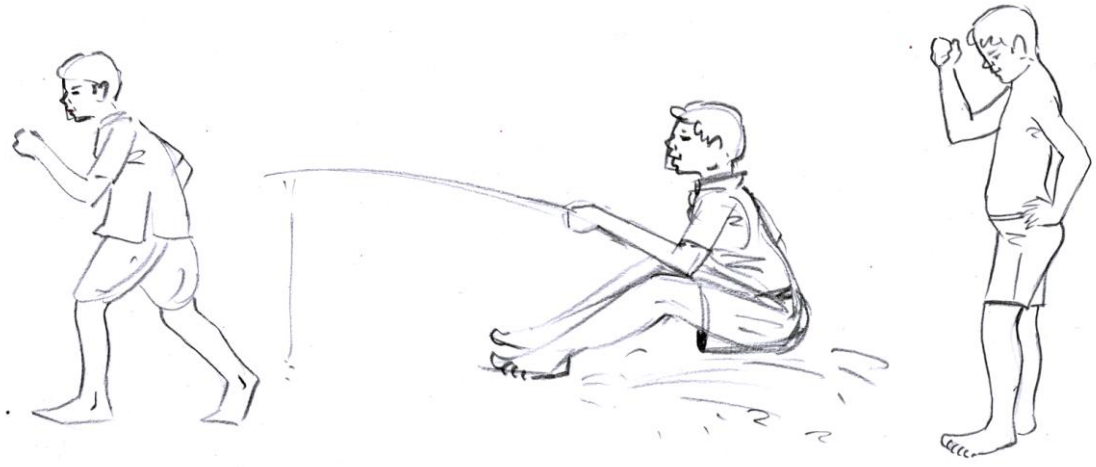
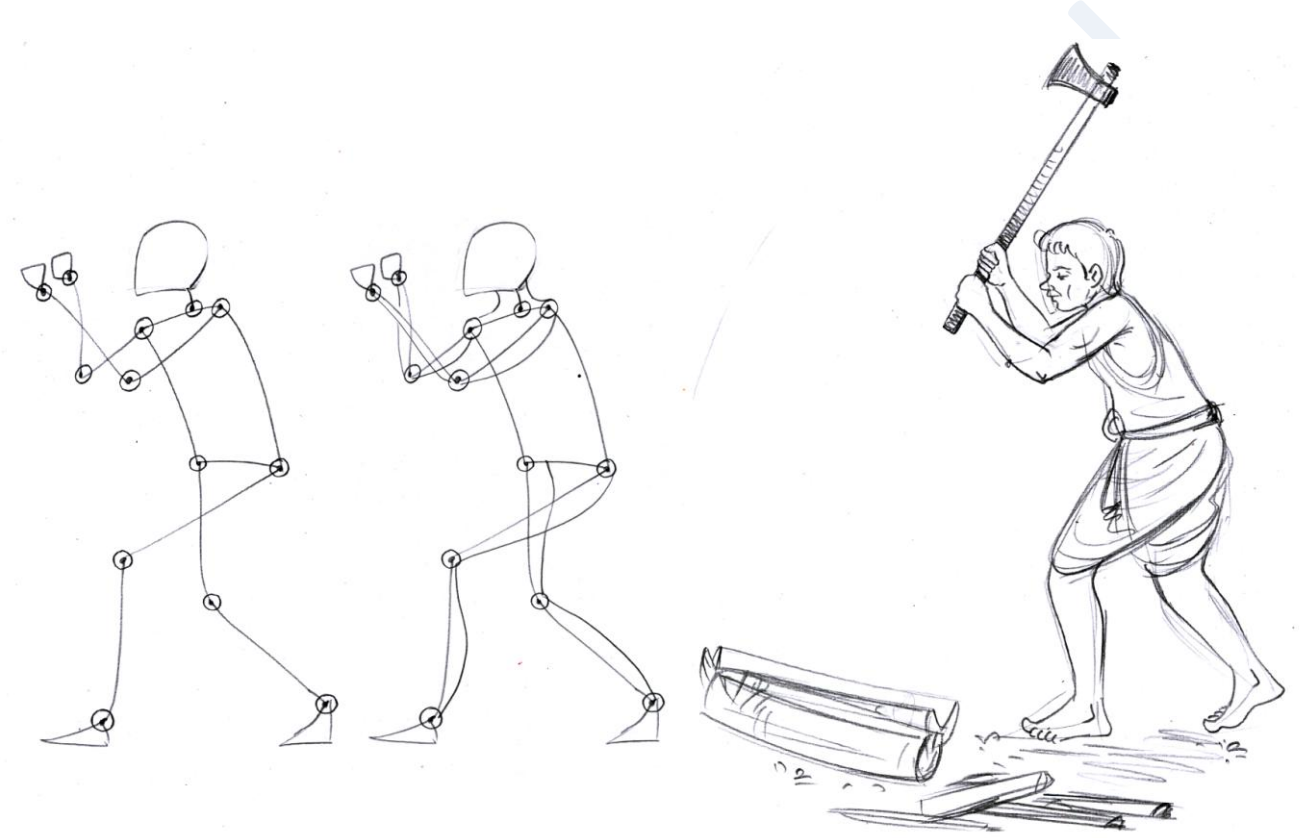


Fig. 106: Steps in quick sketching.

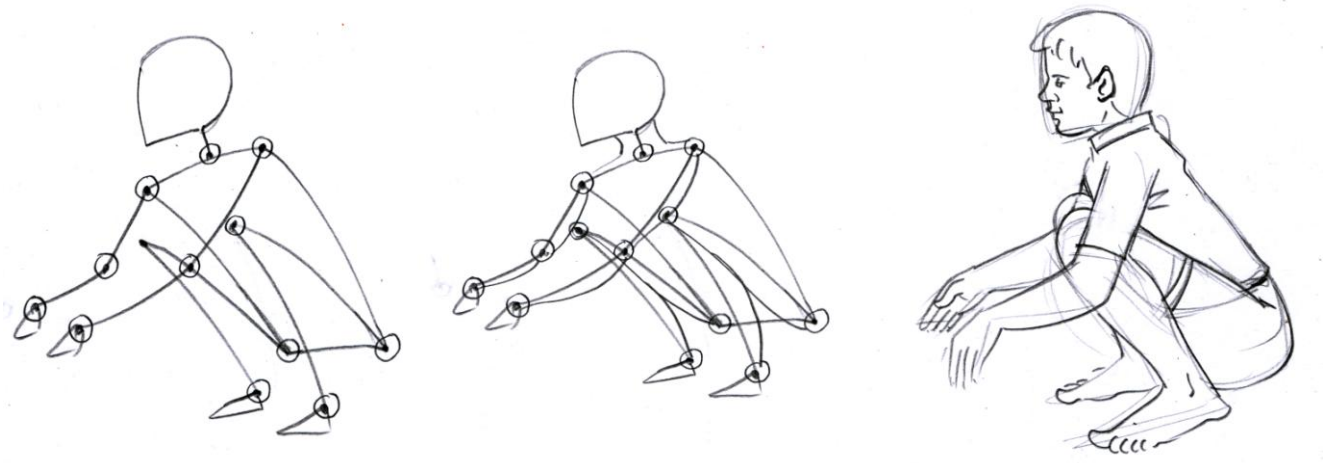
In the above image we can see how the lines are being constructed in order to have the action or activities of three human. Initially through lines try to establish the basic structure of the objects (human). One has to do it very spontaneously and quickly to capture the action of the subject e.g. The first figure is in running movement and the second one is fishing with a fishing rod and the third one is standing with a relaxed mood. Once you complete sketching the subject, you can develop a good detail drawing out of this sketch by finishing the contour line of the subject. Through sketch the designer or artist capture the image as quickly as possible because the subject may change their posture any time. Therefore, before doing a detail drawing one must capture the required image through sketches quickly so, it is important to practice how to sketch well within a short time. Another good process of sketching

Wire frame sketching:

Explaining here is that first you identify every joints of the human body like shoulder, elbow, knee etc. Initially you draw a wire frame of the body along with various joints with the help of small circle to spot them out for your sketch see the fig.107a, b, c, a man is in action and how his whole body and joints are bending according to his body posture. Now you find out the various joints and mark them with small dots or circle, after this step try to develop the muscles of the body like showing in fig.107(a) once you develop muscles of the whole body, put on cloth on that as fig.107 (a). same way showing few more sketches for your easy understanding fig.107 (b, c).



a



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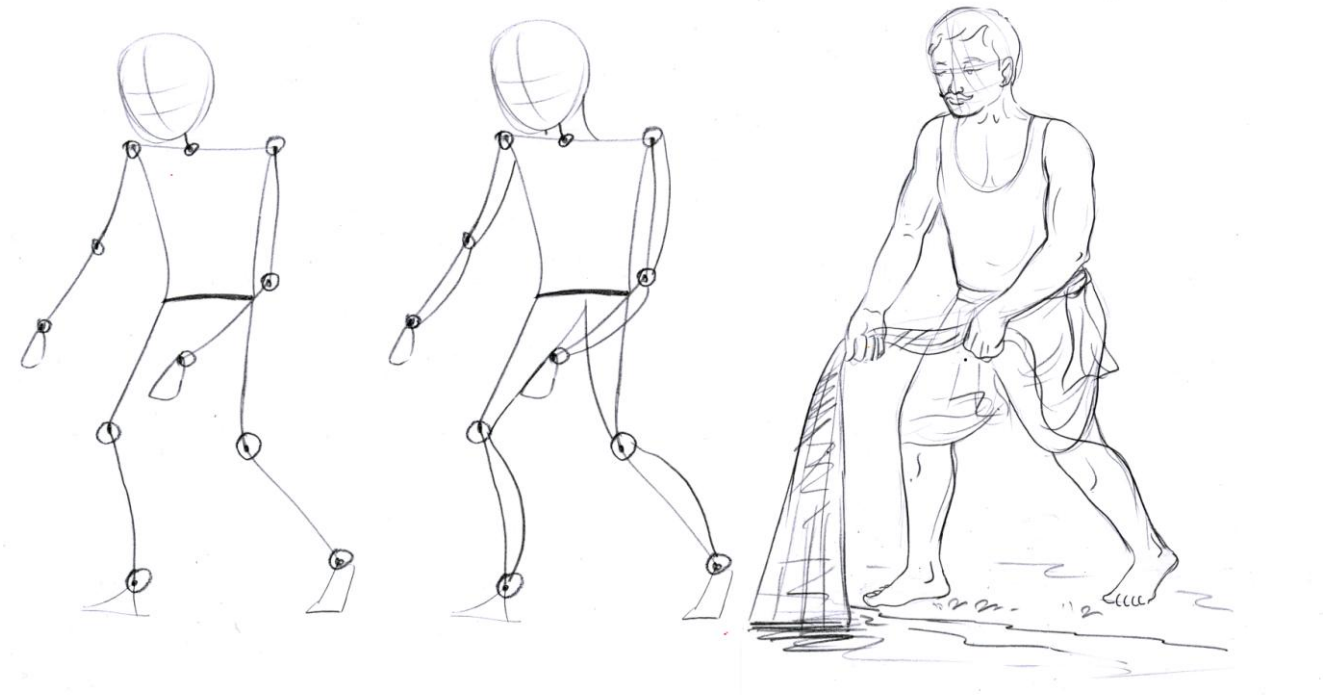


c

Fig. 107 a, b, c: Wire frame in quick sketching.

Spiral line sketching:

The process of doing good sketching through spiral lines in order to understand the basic anatomical structure of the subject as shown fig.108 through this process it is easy to depict even the 3 dimensional effect of the subject matter. Left side of the image showing how one should practice spiral lines in pencils which are like a spiral wire frame of human figure.

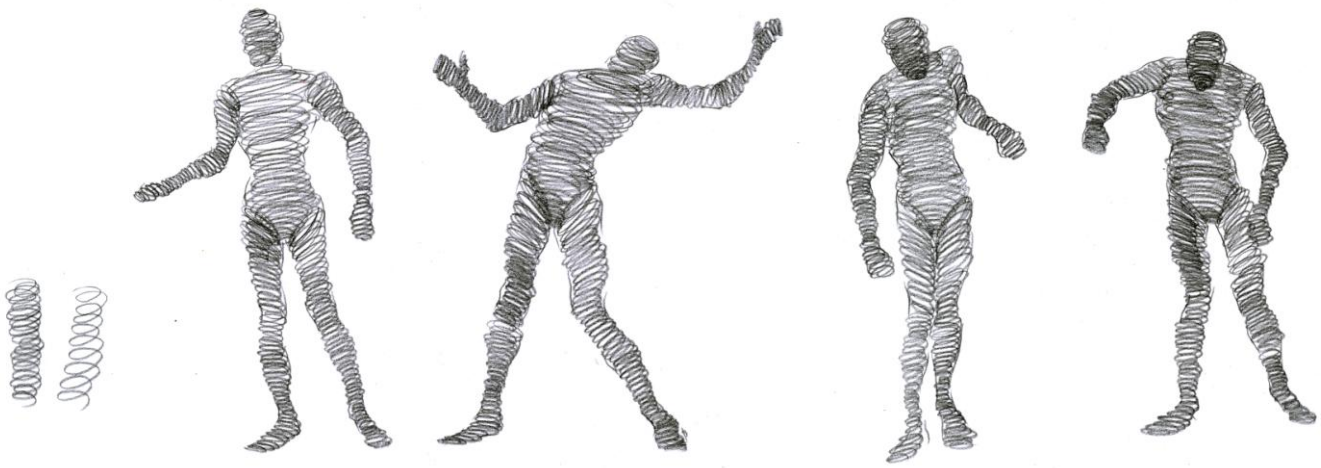


Fig. 108: Spiral line sketching

Lecture 3

In the example fig109 for another process of a quick sketching method through which you can draw a proportionate and accurate sketch in a short time. Here showing a wall clock as our subject. First you have to measure the object's width by a pencil as showing bellow. Remember it does not have mathematical calculation but it gives a correct visual proportion by using pencil by which you are going to draw the object. When you get the measurement of the width (A and B) put a mark there with your thumb finger, and now again you measure the length of the object by the measure of the width of the object (A and B) and find out till how many times you need to measure the length based on the width size. By measuring this way we found that the length of the object is two times more than width size (D, E and E, F) that means the length ratio is 1:3 (a b: c d, d e and e, f) see the fig. 109.

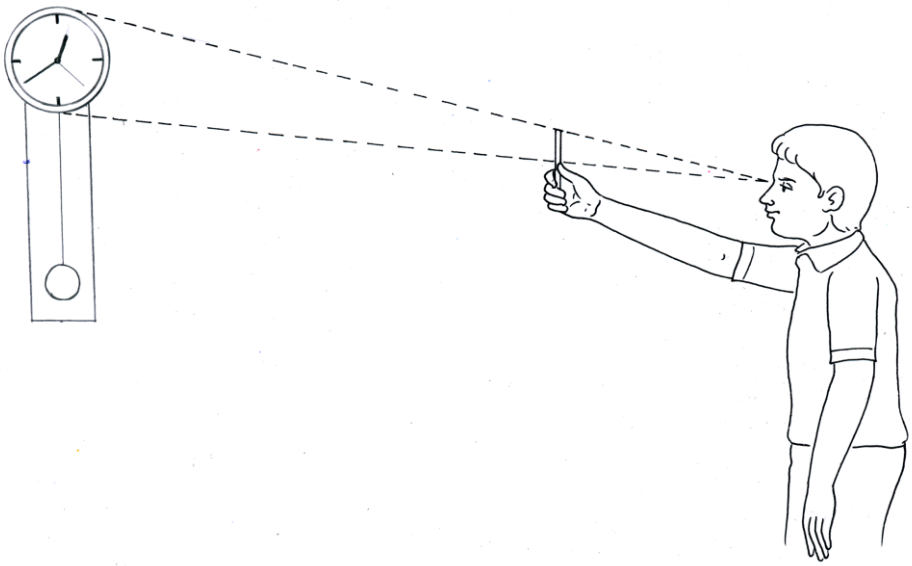
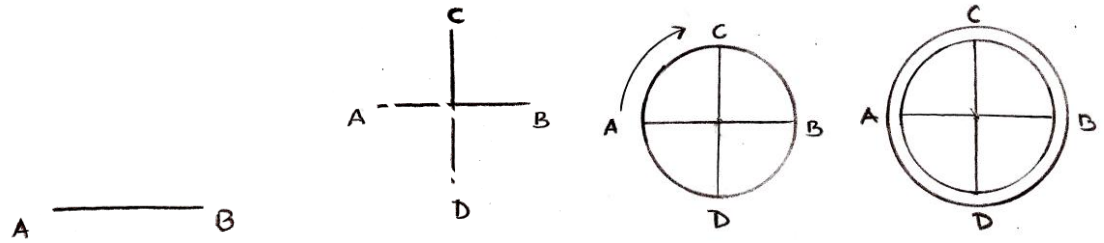


Fig. 109: Spiral line sketching:



1 2 3 4

Fig.110(a):Proportion ratio of an object (wall clock)

In the illustration showing various steps of the process to understand the proportion ratio. This process gives a very proportionate ratio of any object. It has been showed in fig. 110 how a wall clock can be drawn proportionately just calculating the measure by pencil tip without any mathematical calculation.

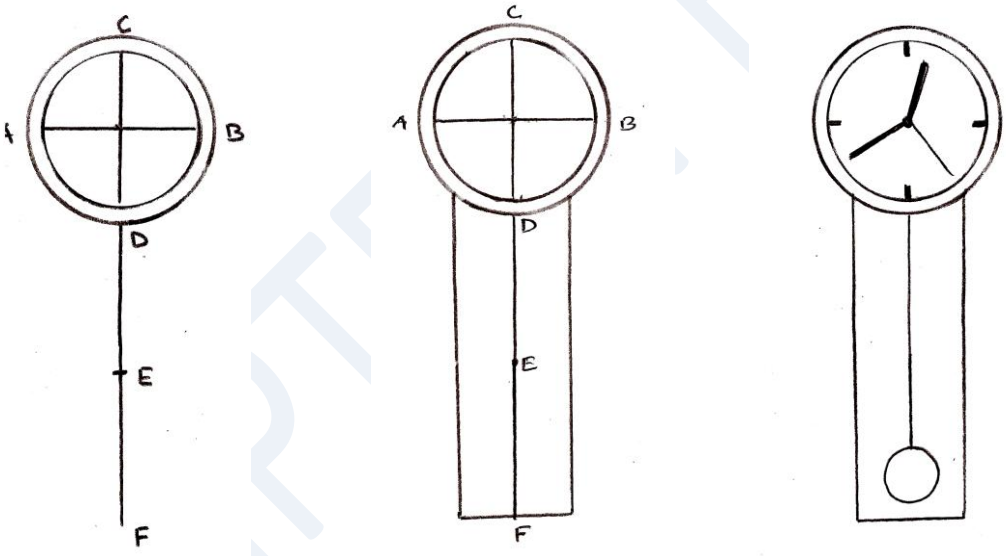


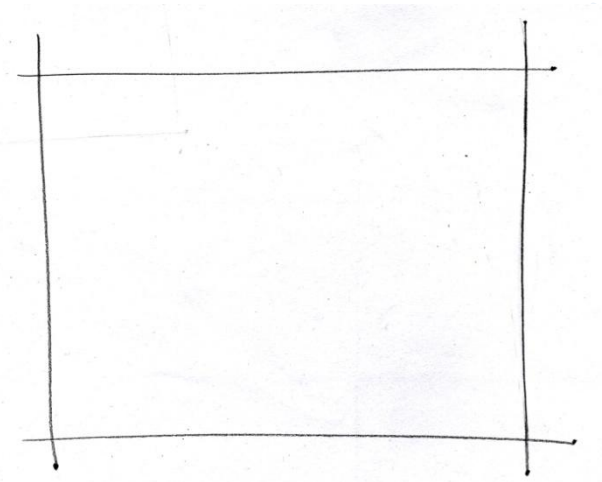
Fig.110(b): Proportion ratio of an object (wall clock)

Question & Answer

Module 7

1) Composition framing showing in figure 104. Referring the same draw a different composition format for a landscape layout.

- See lecture 1, and see the illustration given bellow



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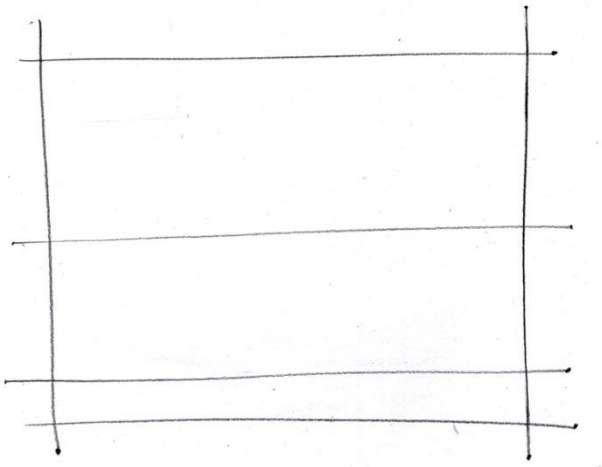

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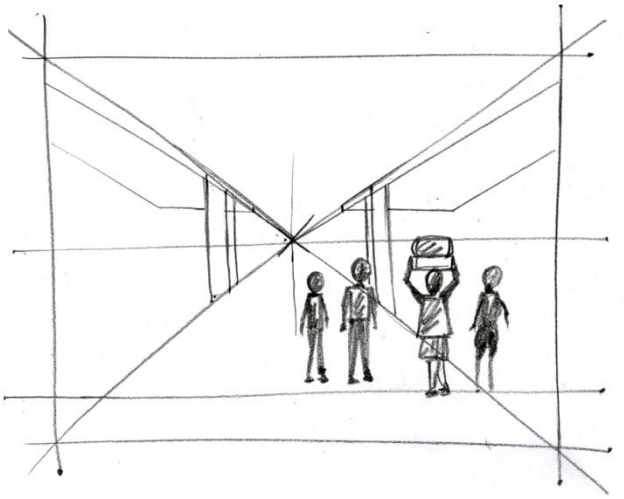

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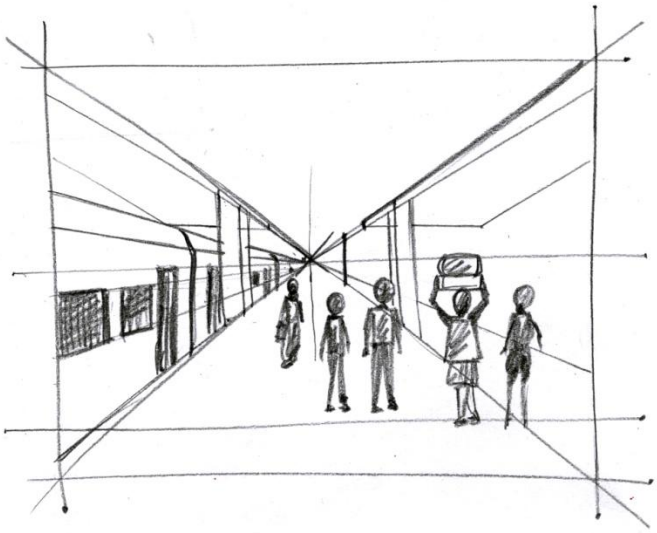

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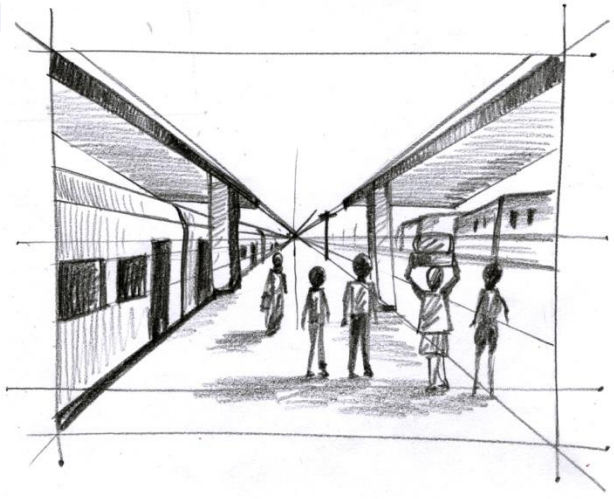


5

2) How you develop a wire, spiral frame quick sketching? Do an illustration.

- See lecture 2 , and see the illustration given bellow

Module 8

Lecture-1

Introduction to basic principles of design using the visual elements- point, line, plane and volume. Lines – straight, curved and kinked.

Design- It is mostly a process of purposeful visual creation. A piece of graphic design has to be placed before the eyes of the public, an industrial design product has to meet the customers requirement, an animation design project need to convey the right message in an interesting way, an interaction design product has to fit with the user's requirement and ease of usage and information and so the list goes on about any field of design. Unlike painting and sculpture, which are realization of the artist's dreams, design fills practical needs or desires.

A good design is the best possible visual essence of the best possible "something", whether this be a message or a product.

One important thing to understand in design is 'Space', an area where a design task will be performed or carried out or made or built in. The concept of space simply says that anything which is there and can be realized by us as visual or tactile is an element and the rest of the area where the element is placed is called a space.

Another important thing is dimensions and any element's representation in 1, 2 or 3 dimensions.

1-D is those elements which have only one dimension, probably length. These are mostly conceptual.
2-D is those elements which have two dimensions, probably length and breadth. They are mostly visual.
3-D is those elements which have three dimensions such as length, breadth and height (or width). These are visual as well as tactile.

The process to realize and apply the above is to understand few fundamentals of design which are essential to carry out any design task. Design is in a way a visual language and to understand it one must try to understand the elements of visual language.

The basic elements are grouped in three groups:
Conceptual elements
Visual elements
Relational elements

Conceptual elements:

Conceptual elements are mostly those elements which are not visible to us directly as we speak of them and hence do not occupy any space to be defined as one of them. They are mostly merged into other elements and are a part or a section of a bigger structure. They are Point, Line, Planes and Volume. If they are found to be existing as individual entity they are usually not termed as conceptual elements and rather become other elements.

Point:

It basically indicates position. By definition we can't actually draw a point, since to see one would require it to have dimension. What we can draw is a dot. In fact dots are the building blocks of everything else. It does not occupy any area of space. It is the beginning of any area of space and is where two lines meet or intersect.

Fig.111 points

Line:

As the point travels from one location to another in space, it becomes the line. The line has length but no breadth or height as it the path of the point from one location to another. It only has a position and direction.

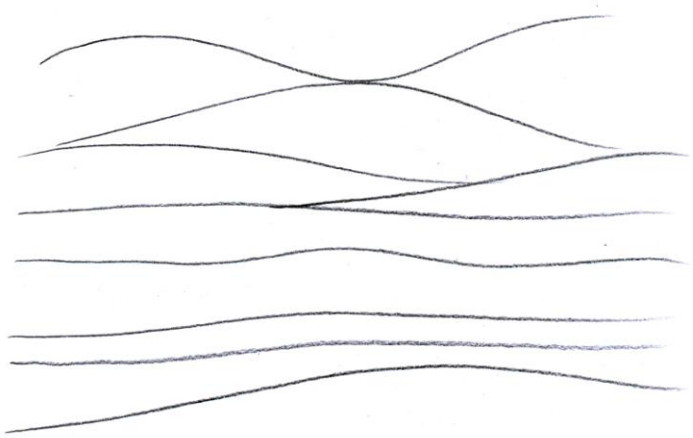
Fig.112: A line as a point that 'travels'

Line is a basic component for making a layout of art that appears in most two-dimensional artworks. Line can be used in many different ways within art. How do lines aid an artist in constructing a visually-effective composition. Followings are some of the examples.

Curvilinear Lines:

Lines within a work of art can either be curvilinear or rectilinear. Curvilinear lines are often referred to as organic lines and they are curvy and free-flowing. Curvilinear can create a soft natural feel within a work of art. Curvilinear lines are commonly seen in artwork depicting the female form. A dominant use of curvilinear lines is also often evident in art nauvough works that project a sense of warmth and a connection to the natural world.Fig.107 shows
The use of curvilinear lines in artwork.

(a) Mix of curvilinear lines in various shapes.



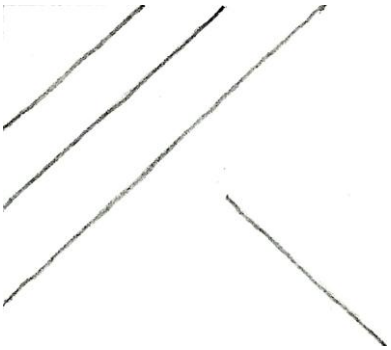
(b) Simple straight curvilinear lines.

(c) hemi-spherical curvilinear lines conveying subject and motion.

Fig.113: Conveying motion through lines

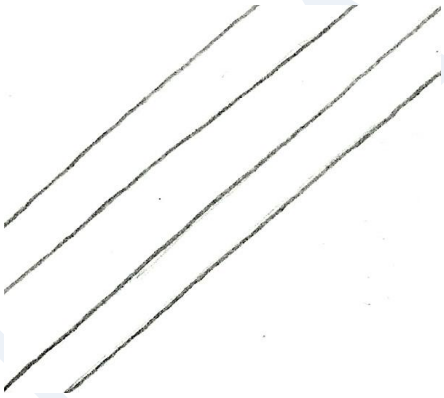
Rectilinear Line:

Rectilinear lines are those that are geometric in style. Rectilinear lines are straight and clear with pointed angles. Rectilinear lines can create a harsh and energetic feeling to an artwork. Cubist work such as Picasso's Guernica employs a dominant use of rectilinear lines to express an organized sense of chaos.Fig.108 shows the use of rectilinear lines and their characteristics in artwork.



(a) Angular thin rectilinear lines without cross.

(b) Angular thin rectilinear lines with cross.



(c) Angular thin rectilinear diagonal parallel lines.

Fig. 114: Various characteristics of lines and its orientation.

Lecture-2

Lines can also be either actual or implied.

Actual Lines:

An actual line is one that can clearly be seen within an artwork. Actual lines are drawn or painted with the intention that they will be seen by the viewer.

Implied Lines:

Implied lines are those that are created when the viewer's eye connects other elements within a work of art to make a line. For instance, a series of dots extending along the surface of a work of art could be mentally connected to make an implied line. Implied lines are used to direct the eye to the focal point within an artwork. Many a times, implied lines are created using the subjects within the artwork. For instance, the figure of a girl in a work of art could be holding a violin that forms and implied line pointing to her face.

Line Quality and Character:

Lines can also be used to express emotion within an artwork based on the line quality and character.
Lines can express different moods based on their thickness or thinness, fluidity or rigidness and lightness or darkness. Artists often take line styles into account when trying to depict different emotions or ideas. Thick, dark and rigid lines can be foreboding and express a heavy feeling. Fluid, thin lines would convey a delicate and intimate feeling.

Line Used as Value:

Lines can also be used to express value, which is the lightness or darkness of an area. Both hatching and crosshatching use lines to express different values. These values are created when the viewer's eyes blend the lines together to make a solid value. Hatching lines are a series of parallel lines that express the idea of shadow in an area. When the lines are drawn closely together, they take on a dark value. When the lines are drawn further apart, they give the appearance of a lighter value. Cross-hatching is achieved by drawing two sets of parallel lines that intersect. Cross-hatching uses the same visual properties that hatching does to express the idea of darkness or lightness. When the lines are drawn closer together, the value is darker. When they are further apart, the value appears lighter.

Contour Lines or Outlines:

Contour lines are often referred to as outlines. They form the border around figures and shadows within an artwork. Contour lines are most often used in drawings to define shapes within the composition. These types of drawings are referred to as contour-line drawings. Contour-line drawings are also often used as a basis for paintings because they define shadows and shapes where paint can later be applied.

We start a drawing with line. Lines can tie everything together in a work of art or design. In previous discussion, you all see many examples of the way artists have used different types of line and how expressive line can be. You all also see works of art that reveal the lines in the world all around us, and pattern and texture created by line.

Plane:

A plane can be thought of as a series of adjacent lines. Simply by adding another dimension called breadth to a line we can define a plane. But planes are abstract objects, in the actual world they do not exist. It is bounded by lines.

Volume:

It is empty space defined by planes, lines, and points. It has position in space and is bounded by planes. In two-dimensional design, volume is illusory.

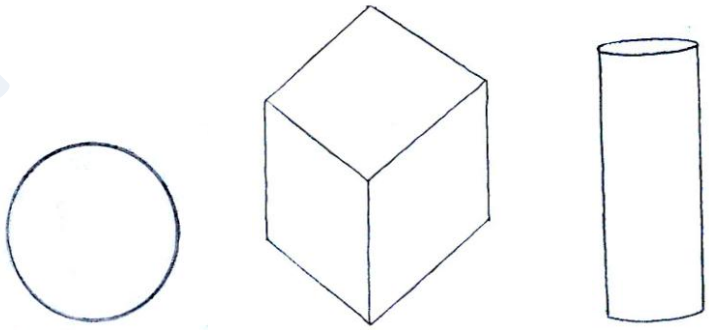


Fig.115 : Volumes

Visual Elements:

When we draw anything on a paper or any other surface we use a line to represent a line which is conceptual. The visible line not only has length but also has breadth. It tends to have other features too like color and texture which is defined by the materials we use to draw the line. Thus when conceptual elements become visible they have the following properties .These are the visual elements what actually we see.

Shape:

When we come to see a visual element or a combination of element's outer contour, our brains try to establish some identification of that combination. Anything that can be seen has a shape which gives us a basic understanding of any combination of visual elements.

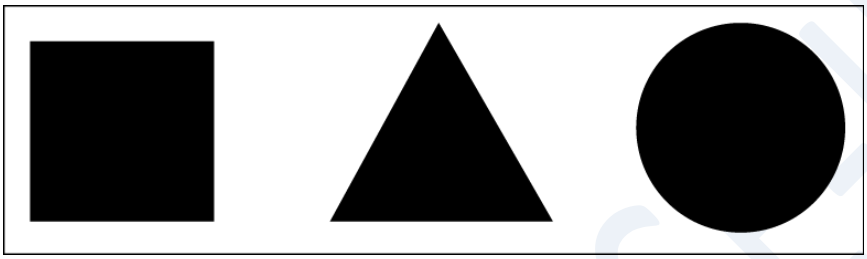


Fig.116: Shapes.

Size:

It is a relative term of the existence of the shape. All shapes have sizes. It is relative if we describe it in terms of its bigness or smallness. But it is physically measureable.

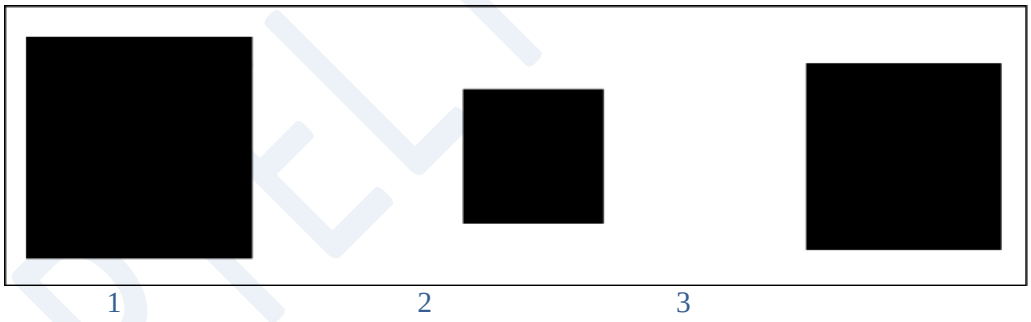
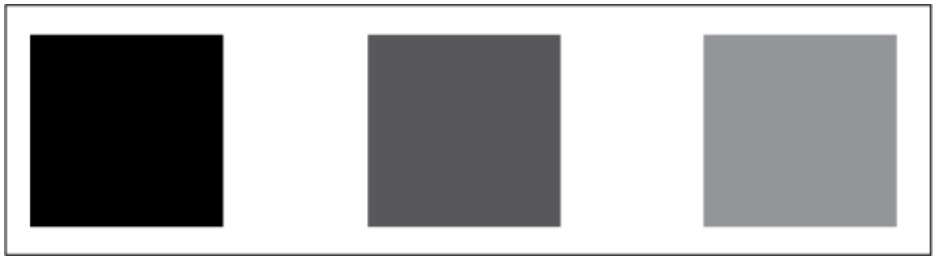


Fig. 117: Sizes.

Color:

Any shape is distinguished from another or its surroundings because of its colour. Here colour is defined as not any particular type but the whole spectrum and also the neutrals as black, white and the grayscale and all other variations it can have (*This we will discuss in the next module*).

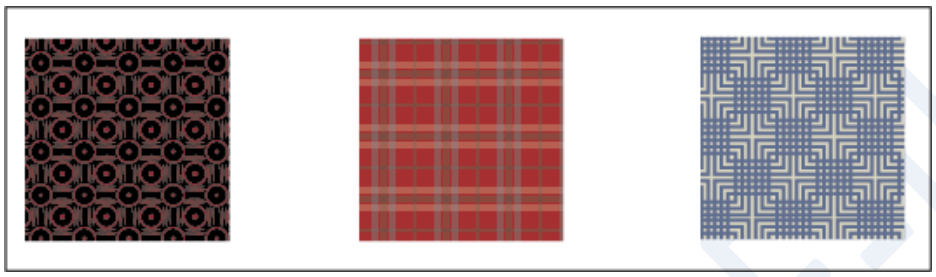


1 2 3

Fig.118: colour/gradient.

Texture:

It describe the characteristics a of the surface .It may be visual or tactile, plain or decorated, smooth or rough, or may appeal to the sense of tactile more than visual or vice-versa.



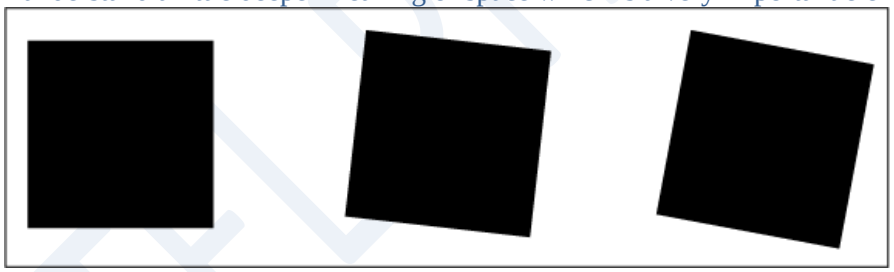
1 2 3

Fig.119: Textures.

Lecture-3

Relational Elements:

It is the placement and inter-relationship of shapes in design. Some are relative to the appearance of elements such as direction and position whereas rest is dependent on the feel of the observer or user such as gravity and space. Here we can understand a little deeper meaning of space which is a very important element.

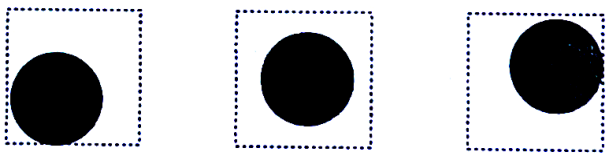


1 2 3

Fig.120:Relation with space around.

Direction:

Direction of a shape is totally dependent on the observer, frame or space that contains it or to other shapes placed nearby. It is a relative element.

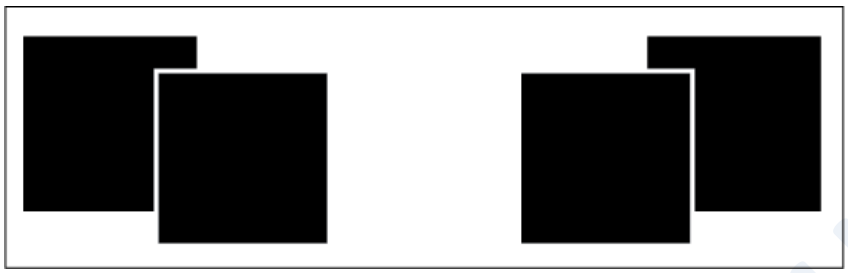


1 2 3

Fig.121: Direction in regard with space around.

Position:

The position of a shape is also dependent and is a relative element to the frame or space or the structure of its appearance.

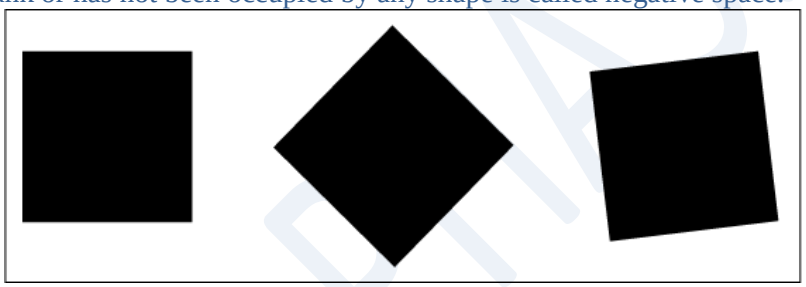


1 2

Fig.122:Position with regard to each other.

Space:

Shapes of any size, however big or small, always occupy space. Space can be occupied or left blank. It can also be flat or illusory to define depth or height. Any space which is occupied is known as positive space and any space which is left blank or has not been occupied by any shape is called negative space.



1 2 3

Fig.123:Position with relation ship with space around.

Gravity:

It is a feeling, which cannot be felt physically unless one is subjected to it which is the natural gravitational pull of the earth .The psychological feeling of this natural phenomenon when observed in any other object other than ourselves; it is this element of gravity. This element gives a feel of heaviness or lightness, stability or instability to individual shapes or groups of shapes.

Pull of gravity of any object in regard to space seems to rest at any position if not interrupted or disturbed by any external element (e.g.force).

Question & Answer

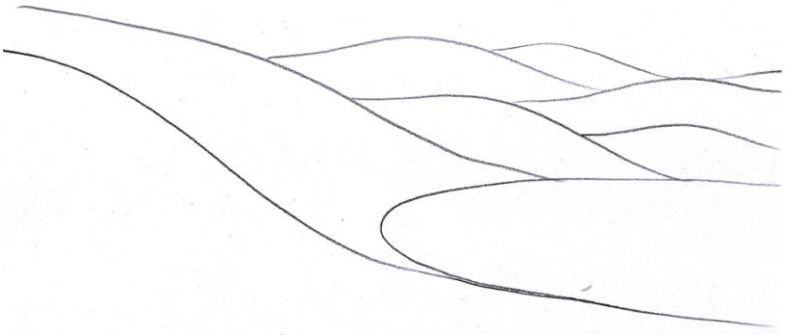
Module 8

1) What is conceptual design element?

- See lecture2

2) What are rectilinear and curvilinear lines? How we can use them to draw any scene from nature?

- See lecture 2 , and see the illustration given bellow



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3) What are visual elements? How we utilize them while making a design layout ?

- See lectur2

4) What is Line Quality and Character?

- Lines can also be used to express emotion within an artwork based on the line quality and character. Lines can express different moods based on their thickness or thinness, fluidity or rigidness and lightness or darkness. Artists often take line styles into account when trying to depict different emotions or ideas. Thick, dark and rigid lines can be foreboding and express a heavy feeling. Fluid, thin lines would convey a delicate and intimate feeling.

Module 9

Lecture-1

Attributes of the visual elements for an understanding of the visual principles of composition balance, rhythm, contrast, harmony, order and chaos.

Some basic design elements are outlined below to understand the visual principles.

Balance:

Balance implies that the visual elements within the frame have a sense of weight. Large objects generally weigh more than small objects and dark objects weigh more than light coloured objects. The position of the visual elements is also critical. We unconsciously assume the center of a picture corresponds to a fulcrum. A heavy weight on one side can be balanced by a lighter weight on the other side if the lighter weight is located at a greater distance from the fulcrum.

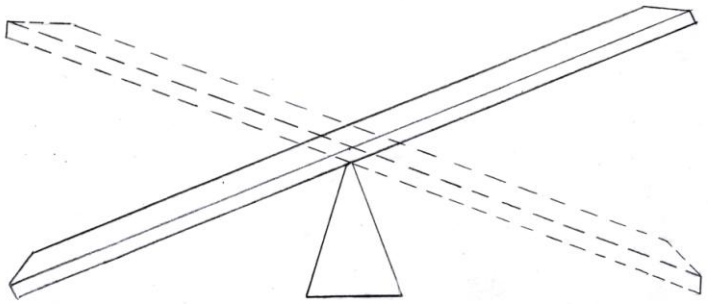


Fig. 124. Balance of visual elements.

Visual interest is what we balance in design. Different colours, shapes sizes, etc. create different degrees of interest. It is the distribution of this interest that you need to control. Subject matter changes the situation because different objects can call more (or less) attention to themselves because
of their content and relationships to other objects in the image.

Balance can also be described as achieving equilibrium. But artist generally refuse to accept this term in their world. It usually means that no part of the composition calls too much attention to itself at the expense of the rest of the image. This increases unity, but decreases variety, and hence interest.

Symmetrical balance:

A vertical axis is required to achieve a balance with symmetry. Part of the reason is that we have struggled throughout our lives to perfect our balance in order to stand, walk, ride a bike, etc. To do this, we must have exactly the same weight on both sides of our bodies. Our axis of symmetry is vertical and this makes a good

model for symmetry in visual information.

Symmetrical balance is also called formal balance because we use a mirror image formula. A mirror image formula is a reflection of an image on its vertical axis. The results of this look formal, organized and orderly. See fig.119

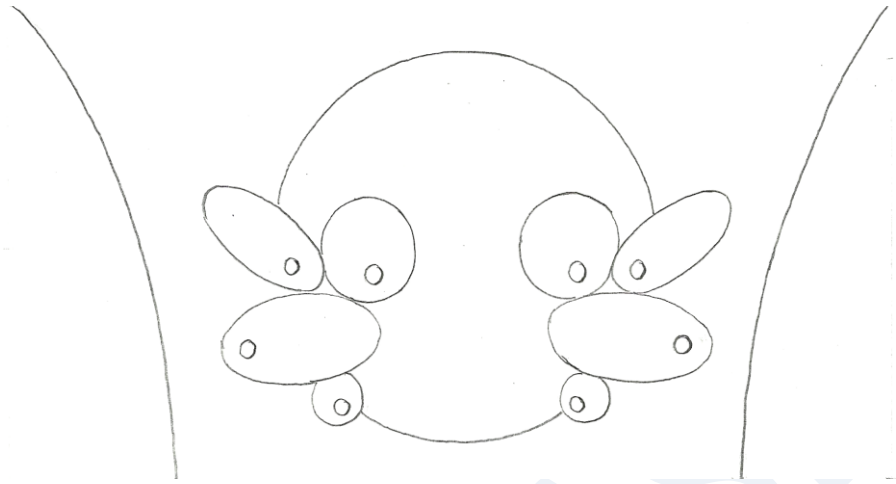


Figure 125. Balance with symmetry and equality.

There is a strong emphasis on the central axis in symmetry since all of the information is reflected from there. This should be taken into consideration when designing with symmetry.

Symmetrical balance guarantees left to right balance, which is the most important aspect of balance. But there is more to balance than that. Balance from top to bottom is also important. Most images seem to be more stable if the bottom seems slightly heavier. If the top seems too heavy the composition can look unstable.

Balance between the center and the outsides of the image must also be considered. Fortunately our own sense of balance is usually good enough to feel when the balance in a composition is wrong. Pay attention to your own sense of balance and you will do well. Your sense of balance, like anything else, can be improved with practice and experience.

Fig.126: Balance with non-symmetry and elements of inequality.

Lecture-2

Rhythm:

Rhythm refers to the regular repeating occurrence of elements in the scene just as in music it refers to the regular occurrence of certain musical notes over time. In photography, the repetition of similar shapes sets up a rhythm that makes seeing easier and more enjoyable. Rhythm is soothing and our eyes usually search to follow rhythmic patterns. To be effective, rhythm also requires some variability - rhythm that is too similar or perfect may be boring. Therefore, when composing our images look for repetition with variation. For instance ,if we are visualising a fence - one that is perfect will not hold a viewers interest for long, but one in which some of the posts are bent, broken, larger or smaller will generate more interest to the viewers.

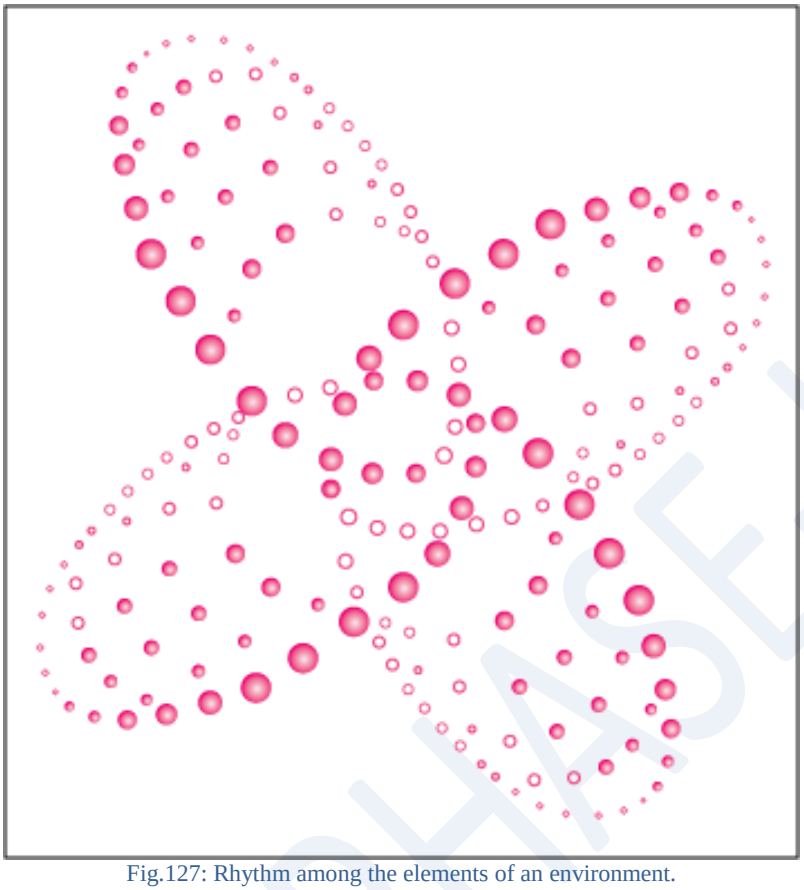


Fig.127: Rhythm among the elements of an environment.

Contrast:

The objective of contrast is to produce maximum visibility. An item is more noticeable with more contrast.

Colour/Value:

One of the greatest possible contrasts in visual design or art is the difference between black and white (value contrast). Colour contrasts can be strong but usually not as strong as value contrasts. Bright colours attract more attention than dull colours.

Size:

When it comes to being noticed bigger is always better. There is a place for all different sizes in the scheme of layouts. Size plays an important role for concentrating other elements for a comparing reference to portray increased attention.

Shape:

An unusual shape can call attention to itself but it is not as strong a contrast as size or value/colour.

Fig. 128: Value contrast among elements and space.

Lecture-3

Order:

It is a state where every element in the composition refers to an alignment or layout which is clearly visible just by looking at the composition. Such a layout generally does not exhibit any deep hidden message the designer wants to portray, and hence, leaves the viewer with more calmness and concentration where the viewer can concentrate on individual elements for a longer period. Here the ability of the viewer to handle complex elements is not questioned as much as in chaos. In such kind of an image, layout or composition the viewer need not put up much effort to view, explore or appreciate the image/layout/design.

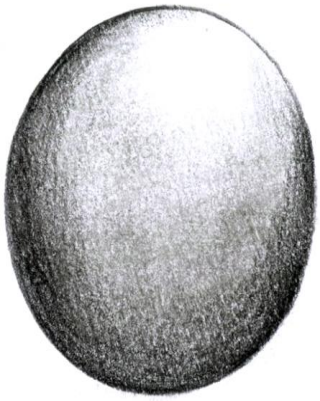


Fig. 129: Order of elements in a visual composition.

Chaos:

Chaos is a disordered state of elements and it is frequently found in nature. The goal of many designers is to portray a picture that exhibits some underlying organization so the viewer sees what the artists intends for them to see, but leaves enough chaos within the frame of the image so the viewer has to put forth some effort to explore and fully appreciate the image. After a certain level, however an image that is too simple fails to hold ones attention (e.g. single leaf above has interesting elements but after a few moments we find little to hold my attention). We compare this to an image for example of the rainforest , and we find the rainforest image has so many textures and patterns that we can look at and explore the image for longer periods of time and still continue to discover things we have not seen before. The ability to introduce and handle complex elements within the frame of an image and still produce an effective composition requires a maturation of seeing that takes time to develop. A composition which depicts an underlying meaning but it is upto the viewer's discretion and may not be found easily just by looking at the composition can be termed as chaos.

Fig. 130: Disorder of elements in a visual composition causing chaos.

Question & Answer

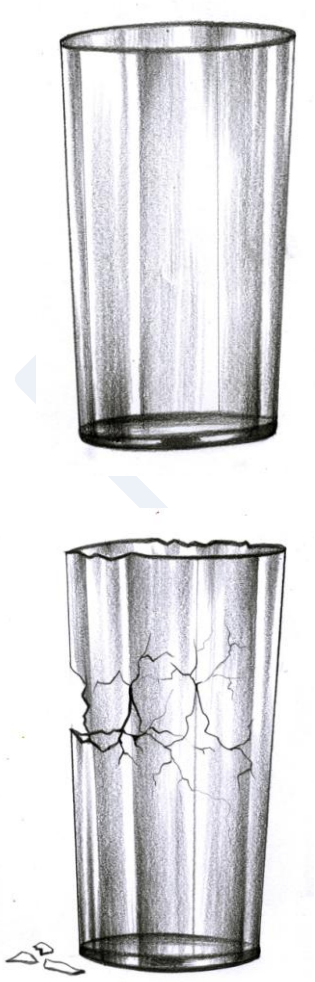
Module 9

1) What are the visual principle of art and design?

- See lecture 1 and 2.

2) What is order and chaos? Visually how we represent them for a particular context

- See lecture3, and see the illustration given bellow



Module 10

Lecture-1

Introduction to fundamental principles of colour, colour theory: hue, value, saturation, gray scale, cool and warm colour. Visual patterns, textures.

This chapter is an introduction to fundamental principles of colour and colour theory: hue, value, saturation, gray scale, cool and warm colour. Visual patterns, textures etc. Colour is one of the most important and strong design elements.

Colour is a property of light. Our eyes can see only a small part of the electromagnetic spectrum called visible light. Visible light is made up of the wavelengths of light between infrared and ultraviolet radiation (between 400 and 700 nanometers). These frequencies, taken together, make up white (sun) light.

Colour has three distinct properties: hue, value and saturation or intensity. To understand colour you must understand how these three properties relate to each other. Hue is a name of any colour. Value is lightness or darkness of a particular hue. Such as the value of blue hue is dark blue to light blue. Saturation is brightness or dullness of a particular hue which means brightness to dullness of a particular hue. For eg.bright red to dull red. Saturation is concerned with the intensity, or the brightness and dullness of colour. A saturated colour is high in intensity, it is bright. A colour that is dull is unsaturated or low in intensity. Another term for saturation is chroma. A colour without any brightness (no hue) is achromatic (black, white and/or gray-Fig 131) Saturation is the most difficult aspect of colour to understand. Since value and saturation are often confused.

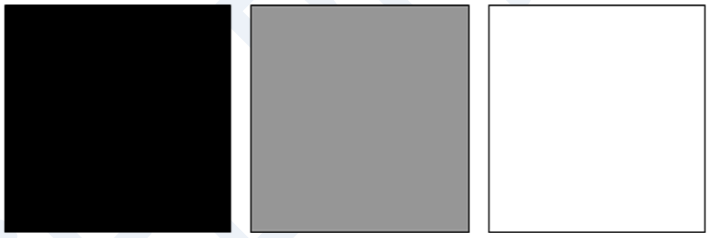


Fig. 131: Achromatic colours

Itten's 12-pointed star expands the colour wheel to include variations in lightness. He was one of the first colour theorists to include not only hue but saturation and values. Black, gray and white may be regarded as colours without any brightness (fig. 131)

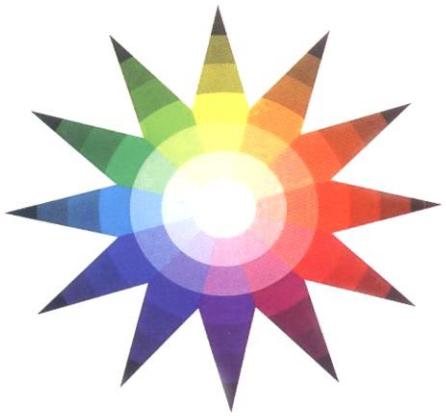


Fig. 132: twelve point colour star

Itten's second colour chart was the wheel. It began in the center with the three pigment primaries – red, yellow and blue. The secondaries were connected to the colours from which they were derived. Tertiaries were then distributed uniformly around to form the wheel. In figure 133 Itten's colour wheel showing primary, secondary and tertiary colours.

Fig. 133: colour wheel.

Lecture-2

Saturation scale:

Make a stepped scale that goes from one hue to its exact complement. The two complementary colours will be the only paints used to make the scale. All of the saturation steps must be equal and an achromatic gray must be in the sequence. There must be at least seven steps in the scale. In this saturation scale the complements are cyan and red. Any set of complements can be used for value scale. With different colours there might be more or fewer steps between the hues and gray. (Fig.134).

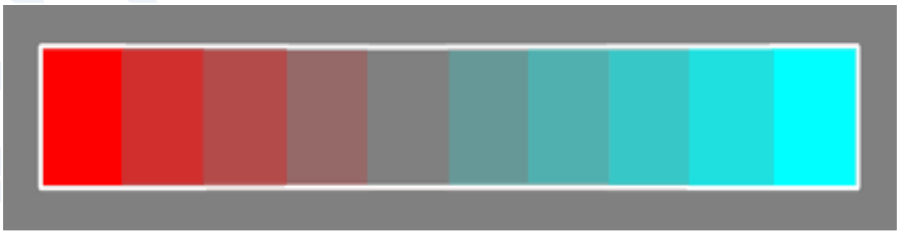


Fig. 134: A stepped scale from red, to its complementary colour, cyan.

The strongest contrast available in pigment colour is black to white. Strong contrast is useful for controlling attention. Colours can contrast but hue and saturation differences are weaker than value contrasts. With or without colour the designer must be aware of the value structure of a composition. The visibility, and hence the readability, of an image depends mostly on the careful use of colour values.

Colour contrasts Why look for contrasts?

Our sense organs (eyes, ears, and nose) can function only by means of comparisonsand hence colour effects are intensified or weakened by contrast.

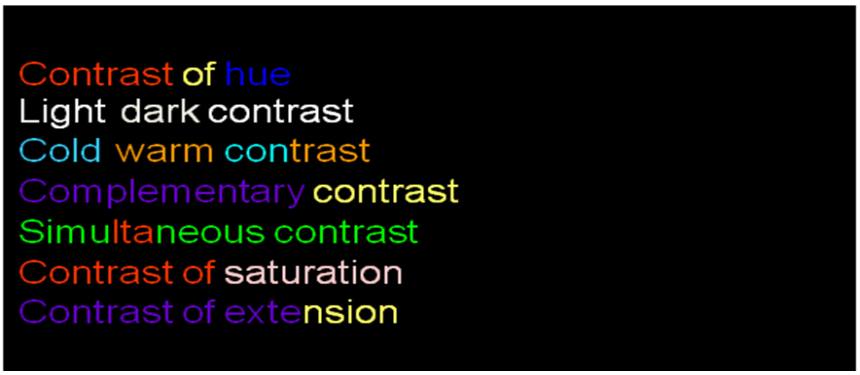


Fig.135: Colour contrast and readability.

The contrast of hue:

The contrast is formed by the juxtaposition of different hues. The greater the distance between hues on a colour wheel, the greater the contrast. The strongest co-hue is of the triad yellow/ red/ blue.
As shown in Fig.136.

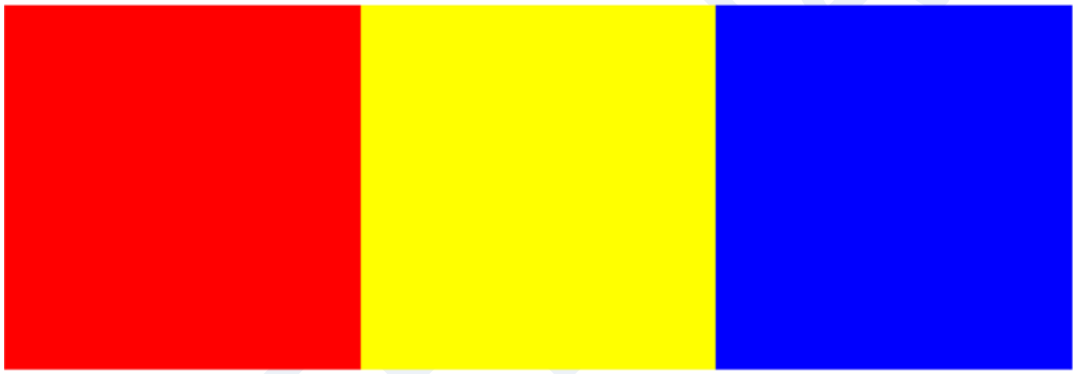


Fig. 136: Strongest co hue

Light dark contrast:

The yellow and violet are the hue of light dark contrast according to the Itten's colour wheel. Therefore this set is a good combination amongst various hues (colours)

Fig. 137: Light dark contrast

Lecture-3

The contrast – interaction:

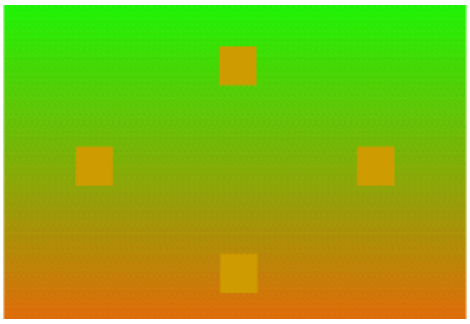


Fig. 138: Colour interaction between green, orange

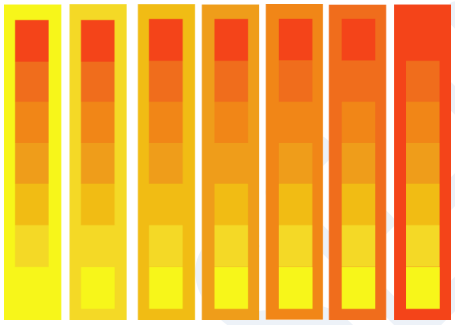


Fig.139: Interaction between red and yellow

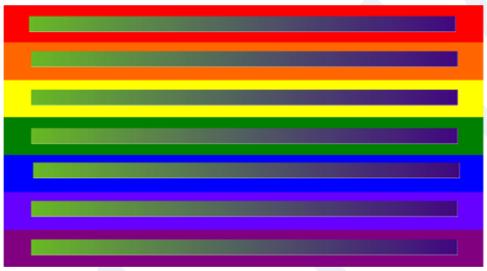


Fig. 140: Colour interaction

The blue dots with a cool green background are very subdued, whereas the blue dots on the red background appear very bright, and against yellow background it looks contrast, while all blue dots are the same hue. (Fig 141).

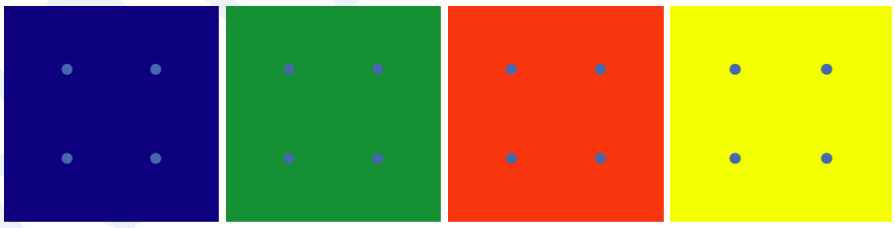


Fig.141: Colours can contrast but hue and saturation differences are weaker than value contrasts

Warm and cool contrast:

The contrast is formed by the juxtaposition of hues considered 'warm' or 'cool.' Red-orange and ice-blue make for an intense cold-warm contrast. It is a proven fact that a difference of 5-7 degrees in the subjective feeling of heat and cold is felt when sitting in a room painted in blue-green as compared to one in red-orange Red-orange/ blue-green exhibit extreme cold-warm contrast .Each complementary pair has its own peculiarities: (Fig. 142) Yellow/ violet are not only complementary but also an extreme light-dark contrast pair Red/green has the same brilliance (Fig.143).

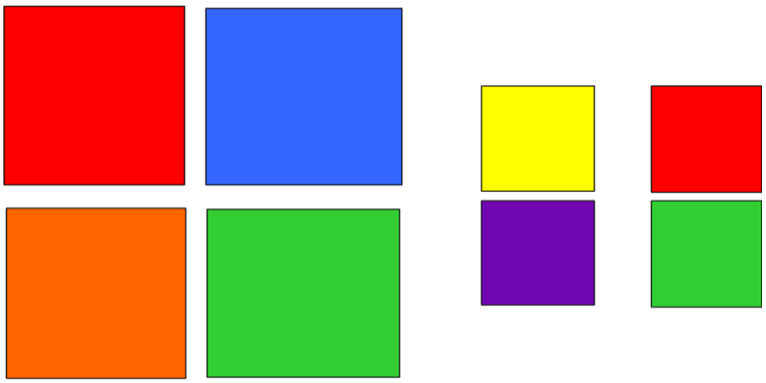


Fig. 142 and 143: Contrast of complements

Contrast of complements:

The contrast is formed by the juxtaposition of perceptual opposites. Two colours are called complementary if on mixing them we get a neutral gray-black. Again, complementaries are a strange pair they are opposites, they incite each other to maximum vividness when adjacent and annihilate to gray- black when mixed.

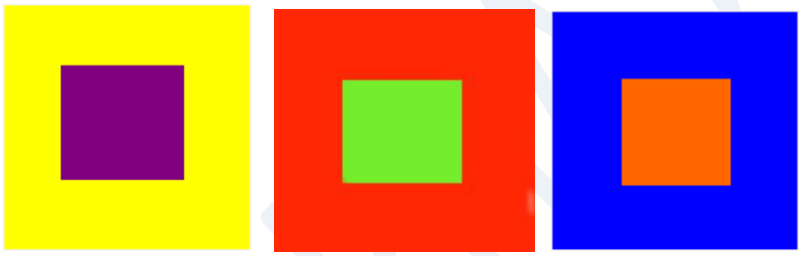


Figure 144 Yellow-Violets, Red-Green, and Orange-Blue

The Rule of Complementary:

Our eyes require any given colour to be balanced by its complementary and will spontaneously generate the latter if it is not present (Itten). This rule of complementary is the basis for harmonious design because its observance establishes a precise equilibrium in the eye.

Two forces determine the force of a colour:

- It's brilliance/intensity.
- It's extent

Brilliance of a particular hue is fixed but we can control its extent. Based on Itten's theory students may do some home work of different colour combination and its extent and brilliance. The ratios of brilliancy are: Yellow-9, Orange-8, Red-6, Green-6, Blue-4, and Violet-3

Fig. 145 Order in brilliance or intensity

In the above example, according to Itten, showing the balance of colour brilliance of yellow (rating -9) with violet colour (rating-3) the proportion ratio is 1: 3.

Lecture-4

Simultaneous contrast:

The contrast is formed when the boundaries between two complementaries perceptually exist. This set of colors creates noise between them and interesting illusions are accomplished. Fig. 146, below.

Fig. 146: Contrast created by complementary colours.

The simultaneously appearing colour not being objectively present but generated in eye induces a feeling of excitement and lively vibration of ever changing intensity.

The contrast of saturation:

The contrast is formed by the juxtaposition of light and dark values and their relative saturation. It is also called Dull-Vivid contrast. It is a contrast between a pure intense colour with a dull, diluted colour. A colour may appear vivid beside a dull tone and dull besides a more intense colour.

Fig. 147: Contrast between a dull and a vivid colour.

The contrast of extension:

Also known as the Contrast of Proportion. The contrast is formed by assigning proportional field sizes in relation to the visual weight of a colour. Harmonious areas yield static and quiet effect. If other than harmonious proportion are used in a colour composition, thus allowing one colour to dominate, then the effect obtained is very expressive or effective in the context of design

Fig. 148. Contrast of extension

Lecture-5

Visual Weight of colour:

When viewing a composition, what we perceive as giving design elements varying degrees of interest. It depends on visual weightage we try to depict in a composition. Typically, visual weight is attributed to objects which are saturated in colour, are larger in size, possess a contrasting value to the rest of the composition, or are placed closer to the edge of the page. Below are examples of such layouts. (Composition).

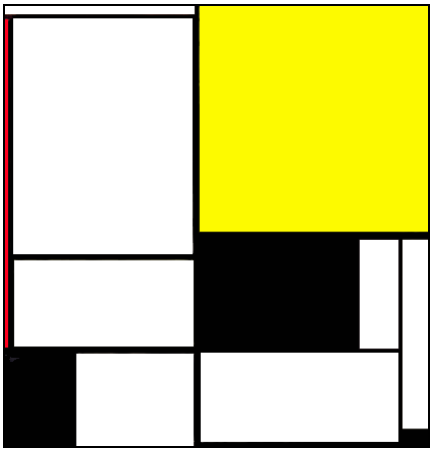


Fig.149: Right Heavy Composition

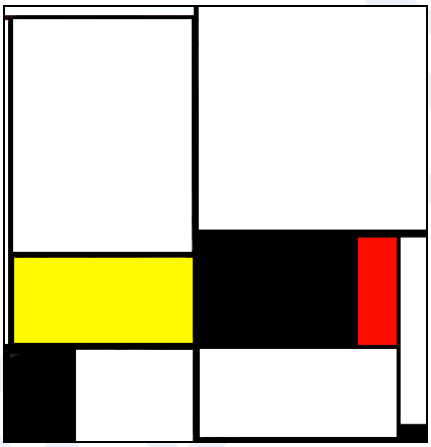


Fig.150: Bottom Heavy Composition

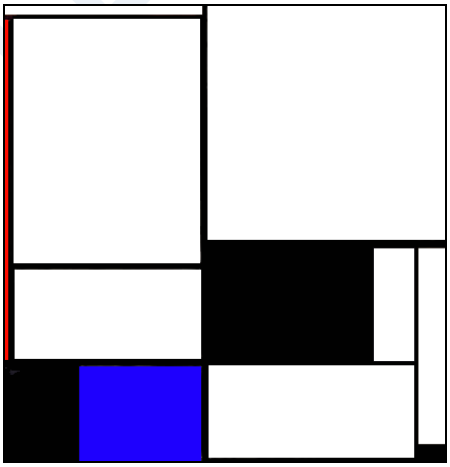


Fig.151: Left Heavy Composition

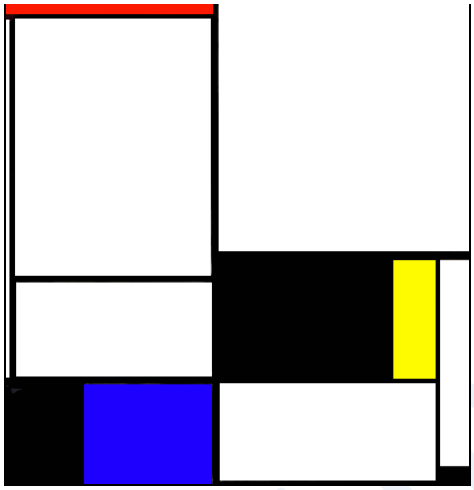


Fig.152. Balance Composition

Colour – Common problems:

Red and Green are pure complements, so they do not work together for text and background. They create noise and fight with each other. Therefore readability decreases. This should be checked out by using other set of complimentary colour. See how two complementaries reduced readability (fig.153)

Fig.153: How two complementarities do not work together

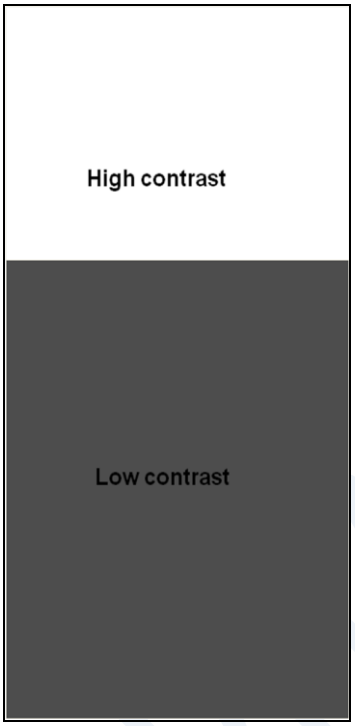


Fig.154: Good contrast is necessary for readability.

If there isn't enough value difference, even if there is a difference in hue (colour), it will be hard to read text. See the fig.155 bellow.

Fig.155: Placing text on background with a wide range of values results in poor readability.

(The above lectures consist of illustrative examples in order to help understand the theory in a simple way followed by a range of hands-on assignments to enrich students manual skill and' understanding about the topic)

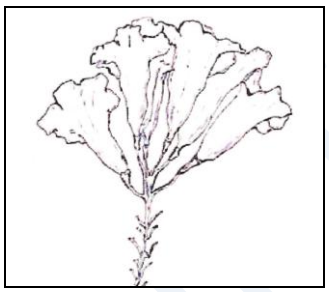
Lecture-6

Visual pattern and texture:

When we talk about pattern first, let us know that what do we mean by pattern? Pattern is a type of visual elements of recurring events or objects, sometimes referred to as elements of objects. These elements repeat in a predictable manner. It can be a template or model or image which can be used to generate things or parts of a thing, especially if the things that are created have enough in common for the underlying pattern to be inferred and can be generated by repeating a particular element into a proper structure. Textured surface of any object if we look at it from a very close distance we notice some repetitive elements which, together construct the textured surface. If we look at it even more microscopically we shall notice various kinds of patterns and their characteristics would surfaced up.

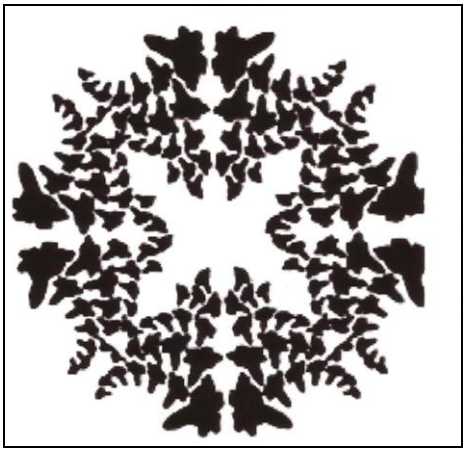
In this lesson we will analyze some naturally inherited pattern from various natural objects. As a designer we shall see them very rationally in order to create new pattern for our requirement. But it is also commonly described as the "Science of Pattern." Any sequence of visual element that may be modeled by a mathematical calculation is considered as pattern.

In the context above a few assignment has been given to the students in order to understand about how we easily can extract pattern from the nature around us e.g. fruits, vegetables or any other object you chose for the assignment. Here we are taken a flower as our reference. Initially do the detail study of the flower such as characteristics of various visual elements like formation of petals and its structure, the stem etc. in this example we have taken the form of the whole flower as basic design elements instead of petals and stem for your easy understanding of the process of extraction of design elements. See the image bellow. After extracting the element (s) we then use various orientations in order to get various interesting pattern out of it fig156 (a).

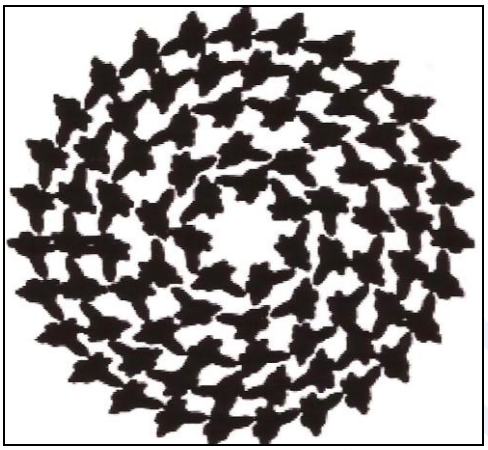


Pencil Sketch

Colour sudy



Dialation and rotation



Rotation and radiation

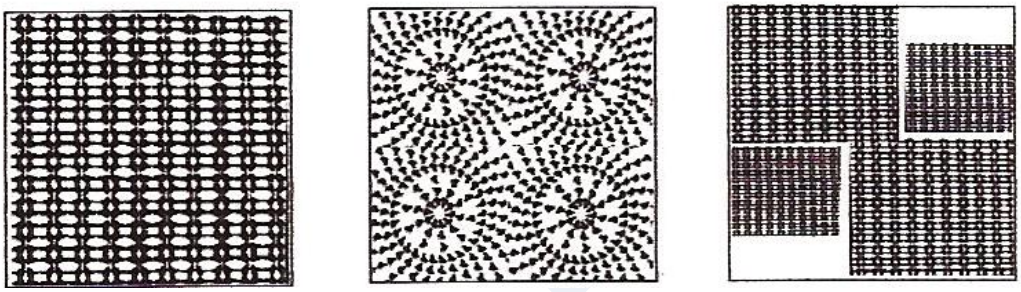
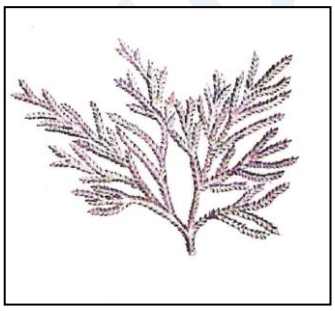
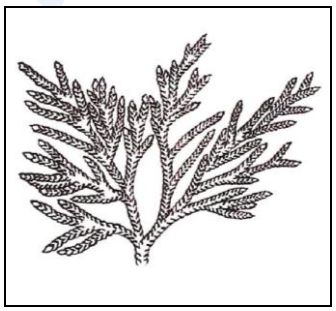


Fig.156 (a): Exploration of various orientations

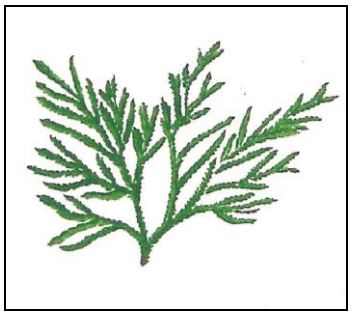
Another similar kind of work process showing bellow as reference. Here a small extracted design elements e.g. a leaf is taken for exploration of pattern. And see how beautifully one can create many interesting patterns just by rotation, reflection and repetition of the small unit of design elements. Fig, 156 (b).



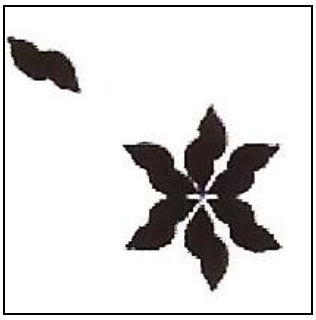
Pencil sketch

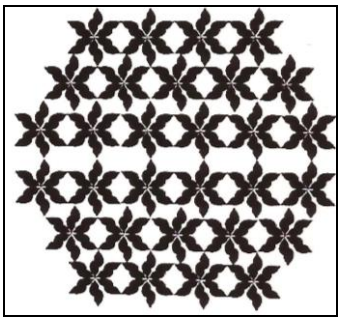


pen and ink



Colour study





b

Extraction of basic elements Patterns as repetition

Exploration of various patterns

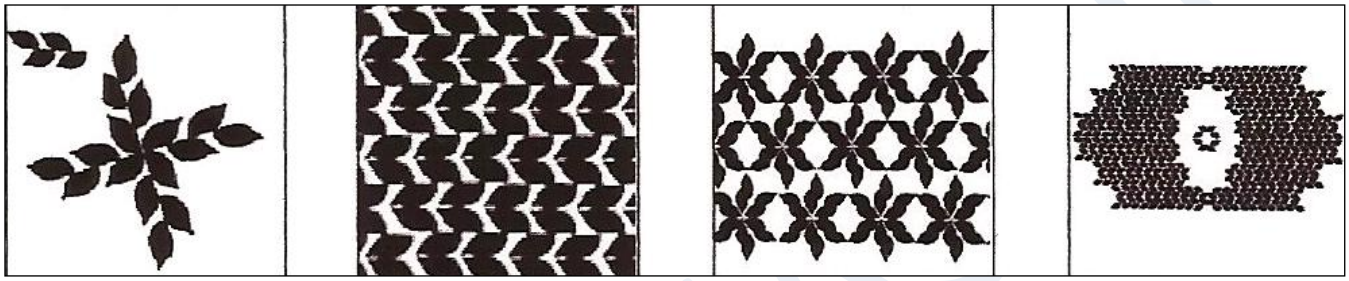


Fig.156 (b): Patterns created by using various orientations

Lecture7

In this visual world we experience different kind of objects visually, all the objects we found and we see that the surface of those objects have their own texture, which determines the quality and character of those objects. Now what is texture? The texture actually refers to surface characteristics and appearance of an object given by the size, shape, density, arrangement, proportion of its elementary parts. A texture is usually described as smooth or rough, soft or hard, coarse of fine, matt and glossy, etc. But when we put texture in design context we than refer it to arrangement of various patterns through which we can see the textural quality of a surface. Colour is one of the components a of texture. Various colour combinations may produce interesting surface texture.

We have discussed in previous module about how to create texture by using various tools. In this lecture we will talk and show how pattern can create different textures on a 2d surface. The assignment done by students showing in previous lecture, here we incorporate some of them as example of how we can create surface texture. Therefore, we will discuss about textural effects only on 2d surface. Examples cited in this lecture do not address either any 3d effect or any tactile surfaces e.g. emboss holes, rough, smooth etc. When a surface of an object we observe from distance we only see textural surface of the object but when we go close and try see extremely precise way with great attention to details (microscopic) we will observe very regular and structured patterns spreading on all over the surface (of the object). Therefore, once you know how to create pattern it is easy to create surface texture. See the fig.157a and b.

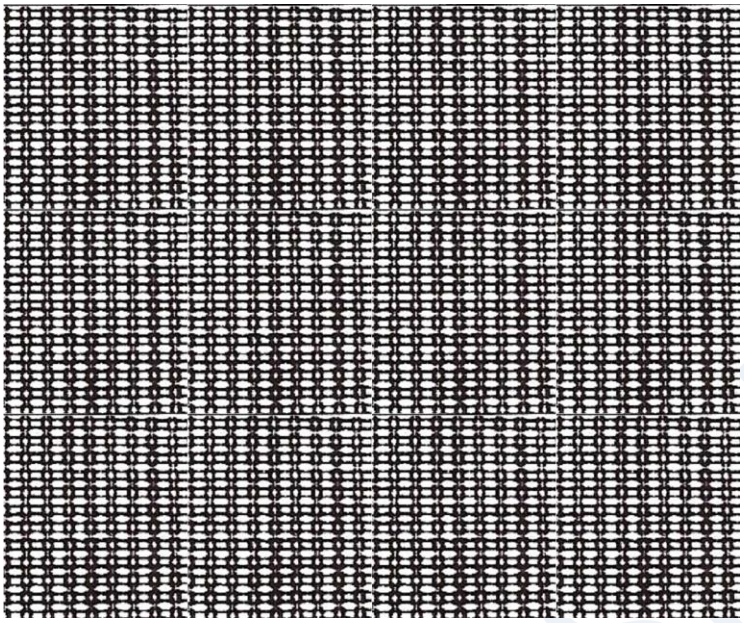


Fig.157a: texture on 2d surface

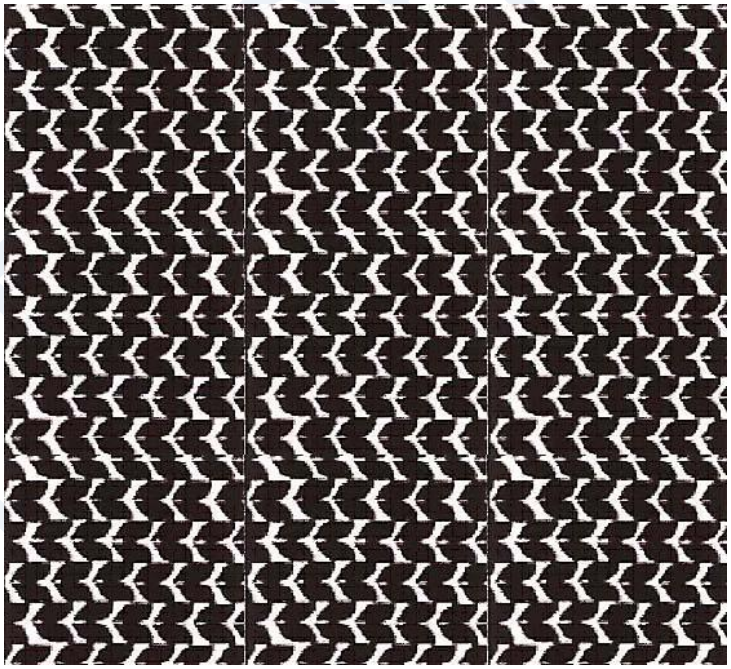
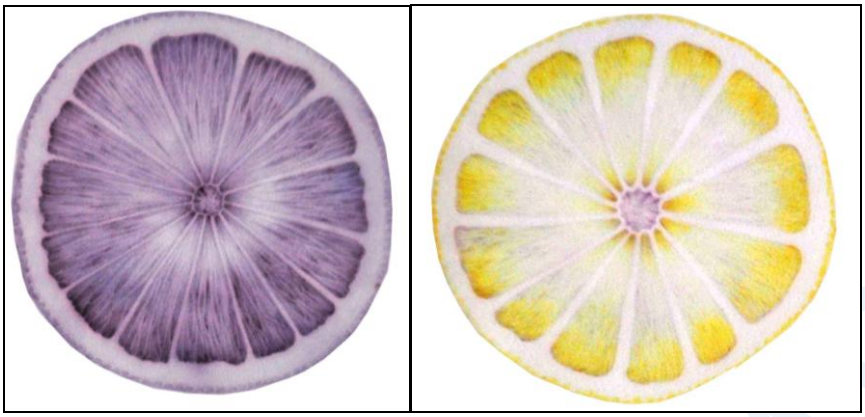


Fig.157b: texture on 2d surface

We extract basic design element (motif) from a flower fig 156 a. We have been repeating the pattern several times (twenty-four times vertically and thirty two times horizontally) in order to acquire the surface texture showing in fig. 157a. Similarly we are putting another example of pattern we extracted

from a leaf fig. 156 b. By simply repeating the leaf on a given space can create beautiful surface texture fig. 157b.

Students created patterns by following the process of texture making from patterns generated from object taken from nature. For their clear understanding about the process they work in the class room under the author's guidance. Some of the outcome you can see in fig.158.



Study of a lemon

Exploration of basic design elements

Fig. 158: Surface texture created from the pattern generated from lemon

Question & Answer

Module 10

1) What are the three important property of colour? How these work with each other?

- See lecture 1. hue , value and intensity

2) What is colour brilliance and extent? Explain with example.

- See lecture 3.

3) What do you mean by colour interaction? How we can use them for a particular design layout?

- See lecture 2 and 3

4) What is colour contrast? Why we need colour contrast for our design?

- See lecture 4

5) What is visual texture means? How we can achieve texture from nature?

- See lecture 7

6) How we can extract pattern from natural object and can use them for our design requirement?

- See lecture 6 and 7.

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