UNIT 4 UNDERSTANDING ART AND GRAPHICS

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4.0 OBJECTIVE

The main objectives of this unit are to introduce you to the art of editing art and graphics for the textbook. Art and graphics play a very important role in textbooks. Textbooks being primarily educational do not use much of artwork as used in fictional texts. However we can see that they play a pivotal role as maps, charts, diagrams, flow charts, illustrations in biology, photographs etc. After having read the units the student will be able to:

1) Develop an understanding of art and graphics and how it works within textbooks.

2) Understand the basics of art

4.1 INTRODUCTION

Art and graphics are valuable parts of a textbook. The two forms stimulate the human mind; enhance learning by adding value to the text. Art can be a very broad based term and this can include any forms of beauty, be it pictures, drawings, illustrations statues or poems. As we are solely concerned about art in textbooks we will be looking at illustrations and other forms of pictorial representations. Illustrations enhance the worth of the printed text. It can help to transmit ideas in a more creative and easy way.

Art helps the educational content of the text in an free flowing manner. Any boring
lesson in history or English can be much more fun when interesting illustrations and graphics are added. In some cases like geography and mathematics, tables, charts and maps are integral part of the text. They add value to the written word. Words and pictures are like paper and ink. However one should not get so involved in the picture that the content loses its meaning. The editor hence has to keep a correct balance between the text and the art and the graphics.

It is wrong to assume that the editor has to be skilled artist. He should have an understanding of the basic concepts of art and design and he need not be a painter himself. However one has to know the basics of art in order to know how to edit for it in textbooks.

### 4.2 Editing Art

For being skilled in editing art, one should be conversant with the basics of art and drawings. Illustrations, cartoons and sketches are included in the categories of art which we will discuss in this section. In order that the editor works successfully with the artists, the editor must know something about the processes of work as well as the techniques and principles to good illustration.

In addition to this, he/she must also understand the ways in which plates are created and then printed, so that the illustration gets the required meaning and acceptability. Most textbooks also have a special art editor. Let us now look into the specifics of them one should be conversant with some basics of art and drawing that includes colour and Colour scheme, balance and perspective, symmetry, composition and consistency.

#### 4.2.1 Colour in art

It should be stressed right in the beginning that there is nothing wrong with a black and white illustration in a textbook. However the adding of colours emphasizes the form of the illustration in the text. Colour is basic form of any art work and hence a good editor should first and foremost be familiar with it. Colours are always well defined in the illustrations and drawings in textbooks. Textbooks that use only black and white illustrations can become boring and not stimulate the mind. As human beings get greatly stimulated through colour one can use it to enhance learning. However it has to be used delicately in textbooks as by using strong and vibrant colours the students might get so engrossed in the picture that he might not retain the written page. An editor should be well aware of these vital information.

An editor should know the medium of the illustrations. By medium one has to realize that online textbooks might use different art and graphics than the printed page. For example one can easily demonstrate three dimensional images in the online medium like the working model of a human heart rather than the printed page.

One has to keep in mind that the aim of the editor is not to tamper with the choice of the artist but rather to aid and assist in his process. An editor should know that there are three main aspects to any colour, its shade (tint), value (intensity) and diffusion or its flow. The shade of any colour can be changed if we add darker and stronger colours, for example when we add in orange in yellow its becomes yellowish. The intensity of the colour can also be altered by adding white or black. Colours can also be dull or bright which add to its diffusion or flow. Colours are often diffused to give it subtle or gentler look. Tints are created when we lighten a colour, for example pink is the tint of red. Darkening the colour gives it a shade, this is done by adding black.

Any picture has to be well chosen on the basis of the three above components. One has to keep in mind that the art works in textbooks have to have a functional
value more than an emotional one. Hence any picture that uses elaborate shades and heavily tinted work should be avoided at all costs.

In order to understand colours one must understand the colour wheel and its components which will be discussed in the next section.

Check your progress

1) What are the three components of colour?

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4.2.2 Colour wheel

This comprises of nothing but 6 essential colours, which are red, orange, yellow, green, blue, and purple. We also have in between colours that are the mixes of the 6 basic ones. Any colour circle or colour wheel which presents a rationally arranged sequence of pure kinds of colour has value. The colour wheel can help the editor to recognize certain useful combinations. They can also help to predict readers' tastes and preferences. Colours can belong to various categories which will be discussed here.

4.2.3 Categories of colour: primary and secondary colours

In the colour wheel, red, yellow and blue are the three primary colours that can not be mixed or formed by any combination of other colours. All other colours are derived from these 3 shades. These 3 colours are the base colours for every other colour on the colour wheel. This is why they're called "primary." When you mix two primaries together, you get a secondary colour.

Primary colours are the most brilliant colours when placed next to each other and it evokes a positive response. Secondary Colours are Orange, Green, and Purple. These 3 colours are derived when you mix the primary colours together. They are located in-between the primary colours to indicate what colours they're made from. Secondary colours are usually more interesting than primary colours, but they do not evoke speed and urgency like the primary ones.

Tertiary Colours are the "in-between" colours like Yellow-Green and Red-Violet. They're made by mixing one primary colour with one secondary colour together. There can be a large number tertiary colours as it solely, depends on how they're mixed. Mixing of colours will be discussed in detail later.

Complementary Colours are Red and Green, Blue and Orange, Purple and Yellow. They are opposite each other on the colour wheel. They're called "complementary" because, when used together, they become extremely vibrant and have heavy contrast. Equivalent Colours are Red and Orange, Blue and Green, etc. These are colours right next to each other on the colour wheel. They create almost no contrast and distinction. They give serenity to the illustrations.

Warm and Cool Colours
Warm colours, such as red, yellow, and orange, evoke warmth as they are associated with daylight. The cool such as blue green and purple colours evoke a sense of coolness that is often associated with grey. An editor should know that warm colours arouse or stimulate the reader, while cool colours calm and relax the mind. Neutral Colours like Grey and Brown are not on most colour wheels. They are neutral because they do not differ with much of any other colour. They are dull and lack vibrancy.

Agreement in colour

An editor should keep in mind that there is some essential harmony being maintained while choosing the colours. When colours are not in harmony it can either become too boring or muddled.

Check your progress

2) What are warm and cool colours?

4.2.4 Associations of Colour

Colours provide strong associations in the minds of students. Just as music produces a pleasing effect and sensations are produced, colours also produce certain strong sensations in the mind. An editor should be well aware about the associations of colour. According to Kinder James (Audio Visual materials and aids) colour produces psychological effects. These are discussed as below:

RED
excites nerves; arouses feelings and motor impulses

ORANGE
heating effect and produces irritation

ORANGE-YELLOW
warm, lively and glowing

YELLOW
joy and gaiety

YELLOW-GREEN
cheerful and smiling

GREEN
smoothing and resting and has a neutralizing effect

BLUE
cooling, calming spiritualizing effect

BLUE-GREEN
is sedate and somber

LAVENDER
Tranquil

VOILET-BLUE
stern, yard and unyielding

PURPLE
richness, royalty, solemnity

WHITE
purity, immaculateness
4.2.5 Perspective

The existence of a perspective is very important to art. This is an optical effect that makes things closer to us than the same objects when viewed at a distance. This hence gives us a sense of distance and solidity especially when we are viewing buildings or objects. Colours also often diminish in intensity as they retreat from the viewer. While linear reduction can be calculated, the reduction of colour and tone can be judged only by sensitivity of the editor. Two dimensional figures can be drawn in the three dimensional way with the help of plans, elevations and sections. Most buildings, furniture and fittings are prepared in this way. One should keeping mind the direct line of vision which is the station point or the spectator point. A big ranged object would occupy the entire cone of vision while small equipment will occupy a small one. One should also examine the suitable station point that is based both on experience and judgment.

4.2.6 Composition and Balance

Any visual image also has a sense of composition just like a poem or a musical piece. An editor should be aware of some essential facts to this element of art. Harmony should be maintained in the illustrations. The below elements affect the composition these are shape and proportion, focal point, space of the illustrations occupied, the unoccupied space, colour, repeating and symetry and perspectve.

The editor should keep in mind the following points:

- Focus should be maintained on the central figure.
- Background should also be highlighted, for example if you are showing a classroom then blackboards, charts, desks, pencils in the desks also become important.
- The images should however not be too cluttered.
- Straight lines and curved lines can be used, which are not seen in real life.

4.2.7 Consistency

An editor should make sure that consistency is being maintained in the illustrations. Colours should be uniform. One image can show daylight and the next image should follow in the same manner unless the text indicates night. The consistency in the background will indicate to the presence of time.

Check your progress

3) How is consistency maintained?

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4.3 EDITING GRAPHICS

The term graphics can refer to the art that we express in lines, pictures, sketches and diagrams. The graphic arts as practiced by designers and engravers for decades are seen increasingly important in textbooks. Many of the examples of the graphics such as charts, diagrams and drawings can be seen within our educational system and in and out of schools such as our bulletin boards etc.

Graphics play a very important role in our daily lives as we see them in school buses, roads, magazines and advertisements. They help to illustrate and illuminate facts that might not be easily learnt or that can be easily forgotten. Dictionary.com defines graphic design as “the art or profession of visual communication that combines images, words, and ideas to convey information to an audience.” Both print and graphics go well together since time immemorial.

The editor is concerned about the arranging and using the different forms of graphics. There are various kinds of graphics. A good editor should know the various types of graphics that are available in the written text so that he can where each one can be used accordingly. Wikipedia, the online encyclopedia makes references to the various kinds of graphics.

1. Drawings
2. Paintings
3. Illustration
4. Diagrams
4. Graphs
5. Maps
6. Photographs

Let us now look into the specifics of editing for each.

Editing Drawings, sketches and illustrations

This form of communication is very popular among children however it is lost amongst adults. Every school curriculum that has an art as a subject that helps develops this graphical skill in children. Since drawings are considered to be rudimentary they are not used in frequency in textbooks. However textbooks of physics and chemistry often make use of drawings and sketches to make their ideas clear. The editor has to make sure:

1. The drawings are clear and simple and are self explanatory.
2. Drawings can be used to describe action in a more meaningful manner like the rotation of earth over the sun etc.
3. An editor can make sure that the drawings clarify complicated ideas in the text.
4. The drawings should be consistent.
5. They should be uncluttered and should be harmonious to the text.

4.3.1 Editing Diagrams

A diagram uses no set pictorial elements but makes the usage of conventional
geometrical shapes to convey an idea or a fact. A diagram represents a structure of its subject, which may be an idea or a sentence for example a cross section of the human reproductive system. Almost all curriculum textbooks make the use of diagrams. In physics we can see that the flow of electricity, vectors, machinery etc are all explained with the help of diagrams. In social sciences diagrams of different kinds are used and often we see pictorial representations explaining complex relationships between individuals and agencies like the explanation of the panchayati raj in India.

As diagrams facilitate learning they must be edited in the proper manner. An editor can ensure this by keeping the following points in mind.

1) They should conform to the general pattern of reading i.e. moving from left to right and top to bottom.

2) They should be placed well within the text.

3) They should not stand alone and need support from key words and symbols.

4) Arrows should be used to assist the reader.

5) They should be accurate.

6) They should be neatly drawn and explained.

7) They should fit well in the text and the sources must be indicated.

8) The size should be large enough.

Check your progress

4) What points must an editor keep in mind while editing diagrams?

4.3.2 Editing Graphs

Graphs are graphics that represent statistical information. Unlike a chart this makes the use of comparative data. For example graphs can quickly explain the rise in expenditure or fuel prices to students. They primarily help in the easy recalling and learning of quantitative data and their inter relationships. They give the reader a vivid description of the number, size and trends of the data and help to analyze, compare and interpret it accordingly. They contribute greatly to the verbal literacy of the student.

There are various kinds of graphs available to us which are, line graphs, circle graphs, bar graphs and pictograms. An editor has to keep the following points in mind while editing graphs.

1) They should give the reader vivid information to the qualitative data.
2) The information should be quick and brief.

3) They should provide logical information on the data.

4) Line graphs should be used to show progress, growth, predictions and forecasts of information. It should contain not more than three variables or the information represented can become complicated to the eye. Different colours should be used to represent the different variables.

5) Bar graphs provide with visual simplicity. The bar graphs should be well spaced between each other. The labeling and the numerical values must be placed below the bar graph. Sometimes this information can also be written in the extreme right of the bar.

6) Children prefer pictograms as it becomes easy to access information. In this lines and curves are replaced by conventional drawings. Each symbol therefore needs to be carefully selected and not changed.

7) Symbols in pictograms need to be simple and free from details and distinct. Colours can be added as it will provide enough attraction and also arouse curiosity.

Although graphs are used in middle and high school levels they can also be used in taught and used in books dealing with standard fourth and fifth. They can be used in subjects such as maths, geography or history. An editor should make sure that graphs are essentially simple since any complicated one is worthless. An editor has therefore a great responsibility to use them effectively as anything can be proved by graphs as they are both truthful and accurate.

Check your progress

5) Discuss any two points that an editor should keep in mind while editing graphs.

4.3.3 Editing Maps

Maps are pictures of earth in miniature and are built upon a mathematical base and have conventional symbols and data. An editor has to keep certain points in mind while editing them.

1) They should fit well in the content.

2) The names and the symbols should fit well and they should be of similar character.

3) The main feature should be clear and legible so that the details can be seen there.

4) There should be correct key that will guide the students

5) The background colour should be light and the physical feature of the land vegetation should be in a darker colour.
6) The content should be up to date and accurate. The subject matter represented should be truthful.

4.3.4 Editing Photographs and pictures

Text and pictures go together and a good editor often thinks of them together and considers them carefully while planning the textbook. While many editors may know what works within a text they may be clueless when it comes to selecting the photographs. A photograph has to be reproduced therefore it has to have certain physical qualities that when printed will give a clear, sharp picture. Hence the editor has to pay special attention to the qualities of a photograph. Let us now discuss them.

1) A photograph has to be based on matt or a dull finished paper.

2) A black and white photograph should have tonal qualities and sharp gradations.

3) The picture should be clear and not be out of focus.

4) The photograph print should be small so that it can be enlarged for clarity. If the print is large reducing its size will lead to a muddled look.

5) The subject should be suitable to the photograph selected. There should be a clear objective to the photograph and it should fulfill it.

A good picture should be well composed. The editor has to pay special attention to it. Composition means the planned arrangement of the objects in the picture. Composition is a matter of good taste and judgment. The editor should look at the center of interest, which is easy to locate. The main object of the picture is called the center of interest. It should be well matched. There should be an informal balance which is pleasing to the eye.

Line, tone and colour are also essential ingredients to the photograph. Line determines the eye movement and directs the aesthetic connotation. Vertical lines that determine movement from up and down give both height and stability. An editor should be aware of these facts.

Component judging of a photograph depends on the editors' ability to analyze the composition and look at the aesthetic effect in it. Editors should strive to see the pictures analytically spending few hours every week analyzing photographs. The editor should make sure that the background is clear and does not distract the viewers from the subject. The eye should automatically be drawn to the center of interest.

Photographs hence make mental images realistic and concrete. It is a great source of instruction by itself. Hence this has a concrete appeal and has thought provoking effects which leads to significant learning.

Check your progress

6) Explain Composition.
Besides photographs an editor has also to look into pictures. They are very commonly used in textbooks and are a part of our daily environment. Children become familiar with them even before they are exposed to textbooks and formal schooling. A textbook picks up a picture and utilizes it in a more fully and systematic manner. An editor has to pay special attention to the pictures while editing for textbooks. They should fulfill certain basic functions which will be discussed in the following section.

1) The pictures should be concrete and should not be absurd or abstract. They help tremendously in vocabulary building, words like piccolo and sand will become clear with concrete representations.

2) They should spotlight a problem or an issue and can be used in every subject area.

3) The initial glance of the picture should fall on the center of interest.

4) The pictures should be uncomplicated and simple. It should be straight forward and come straight to the point.

5) It should have a practical value and not be crowded and cluttered.

6) The picture should be truthful and represent the situation as one might see it.

7) It should be free from blemishes, scratches and blurs.

Check your progress

7) what are the four points an editor has to keep in mind while editing pictures?

4.4 LET US SUM UP

The task of an editor is thus not an easy one. One has to have a continuous sense of judgment and he should possess a large number of technical skills. An editor thus needs to know the basics of art and graphics in order to edit them. An editor has not only to be concerned about the printed page and the text but also look at the illustrations used in the textbook. Photographs, illustrations and drawings are commonly used in textbooks but often we see the use of maps and graphs. The content is heavily dependent on the art and graphics used and hence the editor should pay special attention to them.

4.5 CHECK YOUR PROGRESS

1) An editor should know that there are three main aspects to any colour, its shade (tint), value (intensity) and diffusion or its flow. The shade of any colour can be
changed if we add more darker and stronger colours, for example when we add in orange in yellow its becomes yellowish. The intensity of the colour can also be altered by adding white or black. Colours can also be dull or bright which add to its diffusion or flow. Colours are often diffused to give it subtle or gentler look. Tints are created when we lighten a colour, for example pink is the tint of red. Darkening the colour gives it a shade, this is done by adding black.

2) Warm colours, such as red, yellow, and orange, evoke warmth as they are associated with daylight. The cool such as blue green and purple colours evoke a sense of coolness that is often associated with grey. An editor should know that warm colours arouse or stimulate the reader, while cool colours calm and relax the mind. Neutral Colours like Grey and Brown are not on most colour wheels. They are neutral because they do not differ with much of any other colour. They are dull and lack vibrancy.

3) An editor should make sure that consistency is being maintained in the illustrations. Colours should be uniform. One image can show daylight and the next image should follow in the same manner unless the text indicates night. The consistency in the background will indicate to the presence of time.

4) The points that editor has to observe while editing diagrams:
   1) They should be placed well within the text.
   2) They should not stand alone and need support from key words and symbols.
   3) Arrows should be used to assist the reader.
   4) They should be accurate.
   5) They should be neatly drawn and explained.
   6) They should fit well in the text and the sources must be indicated.
   7) The size should be large enough.

5) Bar graphs provide with visual simplicity. The bar graphs should be well spaced between each other. The labeling and the numerical values must be placed below the bar graph. Sometimes this information can also be written in the extreme right of the bar. Children prefer pictograms as it becomes easy to access information. In this lines and curves are replaced by conventional drawings. Each symbol therefore needs to be carefully selected and not changed.

6) A good picture should be well composed. The editor has to pay special attention to it. Composition means the planed arrangement of the objects in the picture. Composition is a matter of good taste and judgment. The editor should look at the center of interest, which is easy to locate. The main object of the picture is called the center of interest. It should be well matched. There should be an informal balance which is pleasing to the eye.

7) The pictures should be concrete and should not be absurd or abstract. They help tremendously in vocabulary building, words like piccolo and sand will become clear with concrete representations. They should spotlight a problem or an issue and can be used in every subject area. The initial glance of the picture should fall on the center of interest. The pictures should be uncomplicated
and simple. It should be straight forward and come straight to the point.

**Activities**

1. Select five textbooks and make an analysis of the pictures 1) are they integral to the book 2) Are they adequate 3) Do they enhance the teaching potential of the book.

2. Take any one textbook and look at the colours used and make a note of it.

3. Select three photographs to illustrate any book on your local history of your region.

### 4.6 READING LIST


