AUDIO VISUAL EDUCATION

Module	II	Non Projected Visual Aids
Unit	3	Graphs & Charts

Instructional Objectives:

1. Classify by definition Graphs.
2. Classify by definition Charts.
3. Differentiate the four types of commonly used graphs.
4. Explain the type of graph suitable for definite instructional purposes.
5. Name the ten principal categories of charts.
6. Relate these categories with their functions.
7. Prepare four types of graphs for using later in practice teaching sessions, by applying the design principles.
8. Apply principles of visual design to prepare ten types of charts in his trade area to be used later as teaching aids, during practice teaching.

GRAPHS AND CHARTS:

INTRODUCTION

Any picture has one very important advantage over communication through words. Everyone can see it and get some kind of meaning from it. The pictures substitute the language. Lines can also help us communicate with people by symbolising more complicated ideas. By letting lines and communications of lines stand for these ideas, we can make the complications seem easier and the relationships clearer. We normally call these abbreviated symbolic systems of lines as drawings. An extension of this would be graphs, charts or diagrams. The person who makes the drawings or graphs controls their clarity. If you are drawing a graph on the chalkboard, it is upto you to make it easy to understand.

Any instructional aid should be selected, made, or used in instruction if only the instructor feels the need for instructional aids and to clarify his verbal explanations. In the case of vocational training, as in the case of many other educational and training fields, words are always not sufficient for clear understanding of concepts and principles. Therefore you use graphs, charts, diagrams, posters which are called iconic by Edgar date.

Graphs are effective tools for making visual comparisons and contrasts or for presenting complex data in a condensed form.

Charts are graphic means of presenting a variety of related materials on sheets of paper in front of a classroom or in the workshop or at other places for demonstrations.

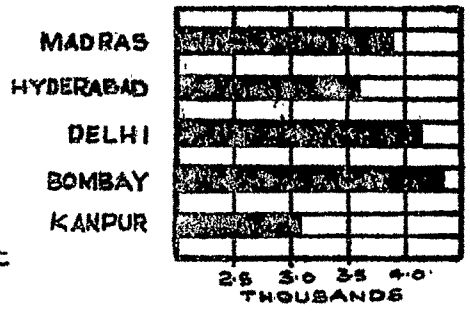
Classification of graphs.

Among the wide variety of non projected visual aids, graphic materials have the advantage of requiring little explanation and can tells us, what it is supposed to do, at a glance. There are many types or forms of graphs in general use, but the most common ones are, The bar graph, The pie graph, The line graph, and The pictorial graph.

Bar graphs

Use bar graphs for more complex quantitatiye comparisons.

Bar graphs as the name indicates, consists of bars arranged vertically or horizontally from a base. Size, length or colour of the bars represent the different values. Bar graphs can be used in comparing or contrasting many subjects. e.g., how many side have been prepared by different trades in a year, so that one can find out at a glance, which trade is leading and which one is lagging behind. You can compare number of person trained at different places. Following guidelines will help you in preparing bar graphs.



NUMBER TRAINED-1960-1980

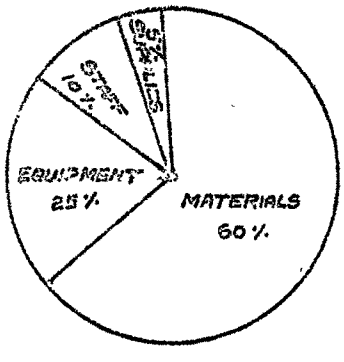
1. Prepare rough graph before doing the finished copy.
2. Decide on the formal - vertical or horizontal.
3. Layout the graph with ruler and pencil.

4. Leave enough space for printing words.
5. Keep even distance between bars; if close bars are made, keep width the same for every graph line.
6. Use vertical guide lines to facilitate reading the graph.
7. Number each guide line according to scale.
8. Fill in with ink and colour if you want to add colour.
9. Give appropriate, but brief heading.

Pie graphs

Use pie graphs for proportions and percentages. The pie graph is also known as circle graph. The circle is divided by the radii into different sectors. Each one will represent a component part of the whole. The essence of the circle graph is that, the total area accounts for 100% of the whole. The divided circle can show proportions quite simply.

A research study conducted in the United States of America in 1970 at the Indiana University showed that school children could read circle graphs as accurately as bar graphs or line graphs, to compare parts of a whole. The investigators believed that these conclusions would be true without regard to subject matter and types of readers. Use following suggestions while making circle or pie graphs:



1. Work out the percentages before drawing finished copy.

2. Use compass with pen or crayon attachment.

3. Use protractor which would help in measuring out the angles.

4. Keep neat and straight printing in the sectors.

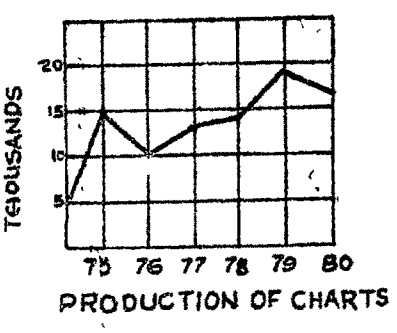
5. Place percentages in the sectors.

6. Colour sectors, if necessary.

7. Use pencil before inking.

8. Give appropriate, but brief heading.

Line graphs



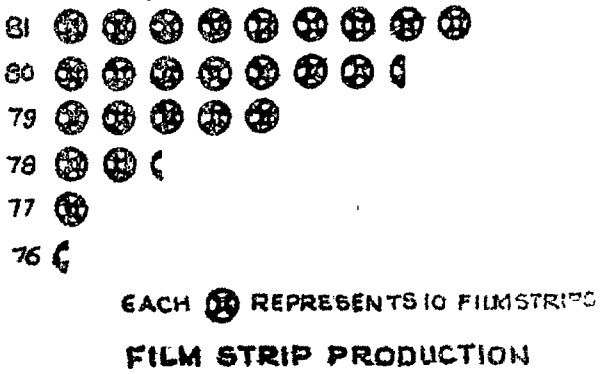
Use Line graphs to show changes accurately. The line graph can show with a fair degree of accuracy the directions and trends of changing conditions. It can be very useful where there are many cases or many values to be shown, where the time sequences are continuous, and where accuracy is important. There are several variations of the line graph, including Shaded surface graphs and Silhouette graphs. Several lines could be plotted in one and the same graph covering a wide range of information. Progress charts for the production can be shown with line graph well.

Following suggestions are offered for making the line graph.

1. Lay out and determine the graph, first on rough paper.
2. Use adequate size, depending on the use.
3. Layout graph initially, with scale and sharp pencil and ink it later.
4. Use faint horizontal and vertical guide lines.
5. Number guide lines.
6. Plot lines carefully.
7. Adopt colours for different lines, and thicknesses.
8. Use space left of X axis and below Y axis for printing.
9. Give appropriate but brief heading.

Pictorial graphs

Use Pictorial graphs for approximate values.



These are adaptations of the bar graph. It is usually employed to present the same kind of data. Used widely in magazines and newspapers, this graph is very easily read and has the added advantage of using realistic representational figures to convey meaning. This is also more difficult to make than others, but the results are worth the effort. This has become an outstanding method of graphic representation. Following principles are important for consideration while making pictorial graphs.

1. Use self explanatory symbols.

2. Lay out graph in a simple manner, making figures as accurate as possible.

3. Use series of figures for greater comparison and accuracy.

4. Use cut outs if suitable.

5. Place printing and percentages directly beneath figures.

6. Use brief descriptive titles.

Summary

Remember that your graph should be simple. For complicated data plan for more graphs. Do not give too much information on one graph. The graph should be readable at a glance. Avoid minute details of figures or symbols, and use them in teaching situations as a summary of a lesson after the student has acquired a background of information from other sources. Graphs are principally symbolic and abstract in character.

Learner activities.

1. Identify different graphs available in the audio visual workshop as bar graph, pie graph, line graph and pictorial graph.

2. In your own subject area, conceive ideas where you could use these graphs.

3. Practice making different types of graphs in your visual aid class.

4. In your practice teaching class, develop a lesson plan incorporating graphs for the summary, teach with it, and report your results to your visual aid class instructor.

5. Make the four types of graphs on given topics as per assignment sheets - Pr. Ex: 6.

On completion of Unit 3 of Module II and Practical exercise No.6, go to the next part of the Unit 3 of the same Module, namely Charts.

CHARTS

The Chart is a systematic arrangement of key facts or ideas in a pictorial form. The term chart has a number of meanings. To the seaman, it is a map. To a businessman, it may be a graphic or tubular sales data. To an engineer it may be a diagram. To the instructor, a chart is a graphic means of presenting a variety of related materials on sheets of paper presented to his trainees in a classroom or shop floor. Charts have thus have many common usages. They are a distinctive medium of visualisation. Charts can be a very effective inexpensive medium, that an instructor can prepare and use to suit the specific needs of his trainees.

The principle categories of charts are

1. Data chart
2. Pictorial chart
3. Schematic chart
4. Diagrammatic chart
5. Tree chart
6. Flow chart
7. Animated chart
8. Phantom view chart
9. Exploded view chart
10. Folding chart or Flip chart

The charts are used in a large number of cases where it is not possible to present the real object, or in cases where the objects are too large or too small for groups. In some cases the chart is an enlargement and in some a reduction of the actual object. Each of the above categories are explained below.

Data Chart

This form of chart is most common and covers a wide range of material. They cover such data as drill sizes, standard thread proportions, weights and many other items of information.

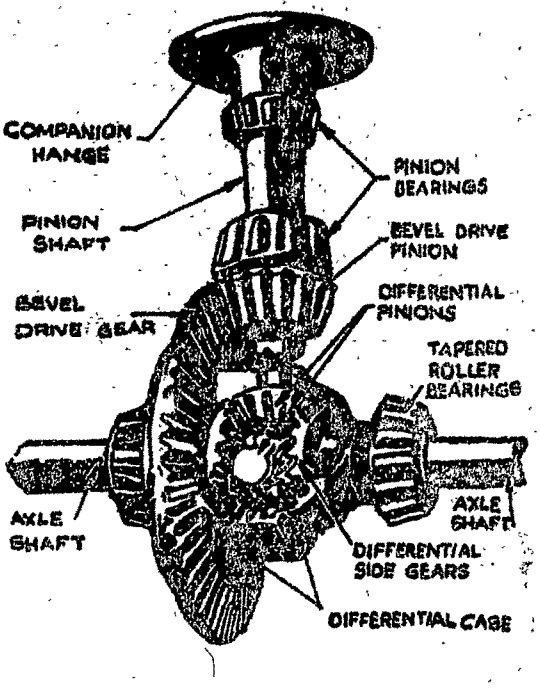
DECIMAL EQUIVALENTS

1/64	.015625
1/32	.03125
3/64	.046875
1/16	.0625
5/64	.078125
3/32	.09375
7/64	.109375
1/8	.125
9/64	.140625
5/32	.15625
11/64	.171875
3/16	.1875
13/64	.203125
7/32	.21875
15/64	.234375
1/4	.25
17/64	.265625
9/32	.28125
19/64	.296875
5/16	.3125
21/64	.328125
11/32	.34375
23/64	.359375
3/8	.375
25/64	.390625
13/32	.40625
27/64	.421875
7/16	.4375
29/64	.453125
15/32	.46875
31/64	.484375
1/2	.5
33/64	.515625
17/32	.53125
35/64	.546875
9/16	.5625
37/64	.578125
19/32	.59375
39/64	.609375
5/8	.625
41/64	.640628
21/32	.65625
43/64	.671875
11/16	.6875
45/64	.703125
23/32	.71875
47/64	.734375
3/4	.75
49/64	.765625
25/32	.78125
51/64	.796875
13/16	.8125
53/64	.828125
27/32	.84375
55/64	.859375
7/8	.875
57/64	.890625
29/32	.90625
59/64	.921875
15/16	.9375
61/64	.953125
31/32	.96875
63/64	.984375
1	1.0

Many charts for use in schools are available in the market. But for vocational training in India, we have not been able so far to commercially produce them except in very few areas.

Pictorial Chart

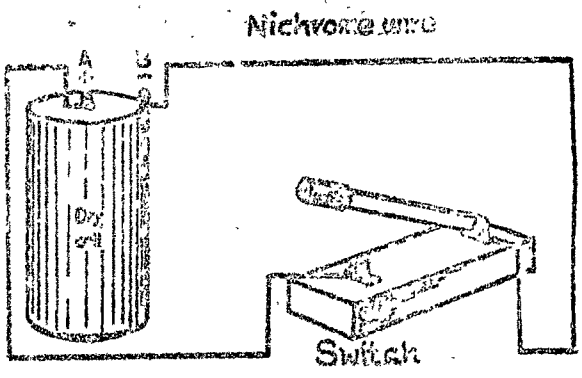
This may consist of enlarged photographs of machines, manufacturing processes, tool and machine identifications, garment and necessary trends. X rays, architectural and other building details, and other pictorial forms. In all cases, charts serve as valuable supplement to the instructor's imagination and enable trainee to form the correct visual images and learn the important parts of the object pictured- say a machine or tool under discussion.



Schematic chart

This form of chart is particularly useful in depicting how various mechanisms operate. Electrical, Electronical, Pheumatic or Hydralic power circuits and controls, principles of optics, water heating systems, plumbing layouts, are all examples

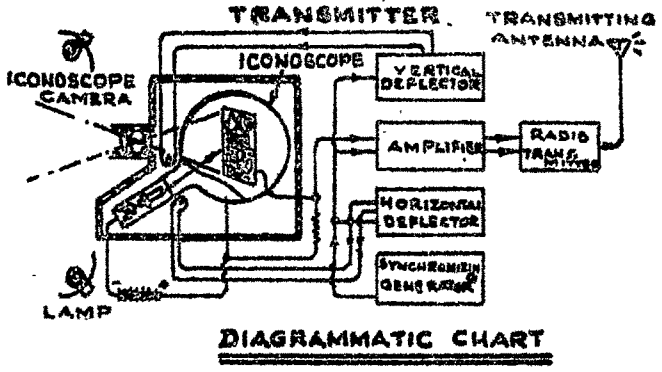
of schematic chart items. Whatever the charts you may prepare or use, be sure that standard symbols are adopted, and these are known to your trainees. If not make sure that they know the symbols before the chart is presented to them. In case you are using more than one chart at a time, please see that you maintain the sequence and relationship. In the field of vocational training, schematic charts will be very useful.



SCHEMATIC CHART

Diagrammatic chart

This is an effective way of depicting wiring diagrams, electronic layout, pneumatic layout connected with any machines or systems, job or project. Symbols are used to represent meters, batteries, valves, pumps, and many other things that are shown in the chart. It is a very convenient and economical way of presenting necessary information to engineers, technicians, skilled men and operators.

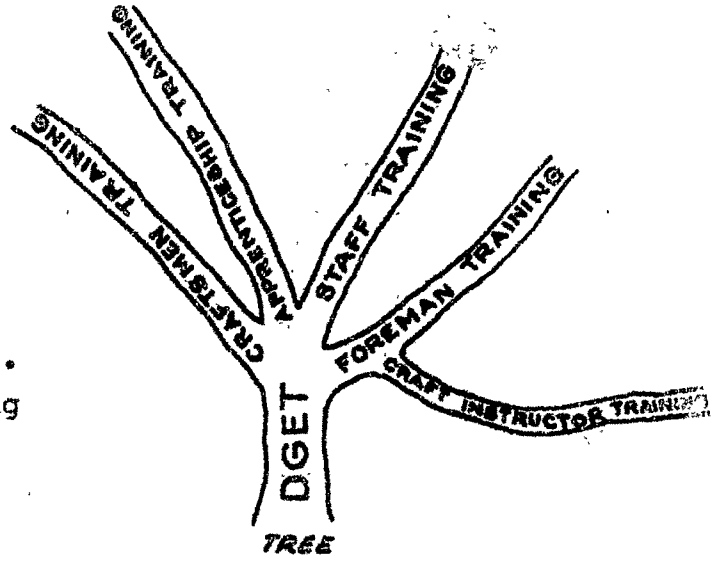


DIAGRAMMATIC CHART

Most of the technical skilled craftsmen will need the know how to interpret this kind of information when employed as skilled craftsmen on the job.

Tree Chart

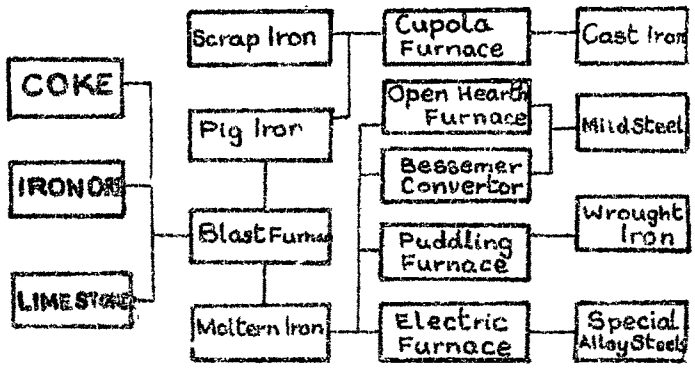
As the name suggests, the tree chart is developed from a base composed of several roots, which lead into a single trunk. The branches in turn, represent developments and relationships. A good example is a genealogy chart in which tools are explained. The tree chart is useful in showing developments resulting in from a combination of major factors. It is effective for showing how iron ore, limestone, coke, and various materials may be combined to produce a variety of steel. It can also be used to show how a great variety of elements are combined to form one important product.

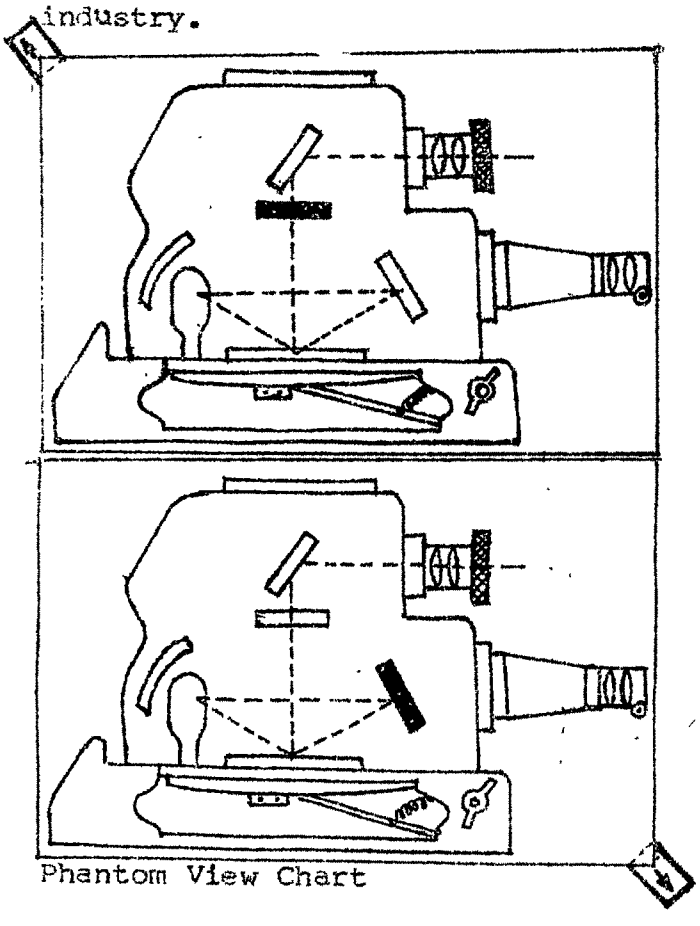


Flow Chart

Flow chart is one of the most commonly used charts used by instructors in teaching concepts on manufacturing process. It is also very useful, when explaining functional relationship,

sequencing of events etc. It can also be termed as an organisational chart and is used to a great extent in government and industry.



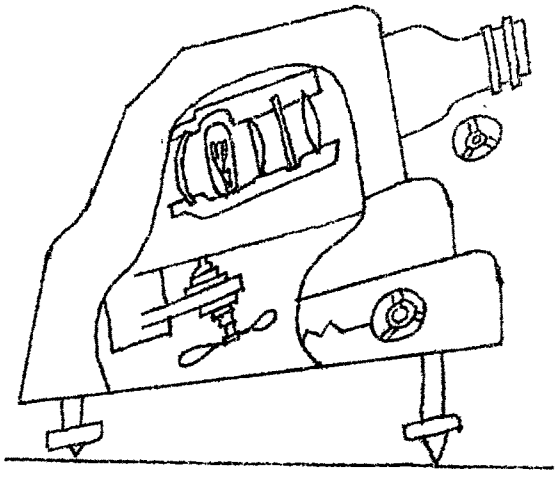


Phantom View Chart

The type shows the details of the interior or hidden parts without obliterating the outer shell or surface. This is sometimes preferable to sectional views, as it can show each part as it actually exists. In the automobile trade, this helps both instructor and students to a great extent. In other engineering trades also this is very useful.

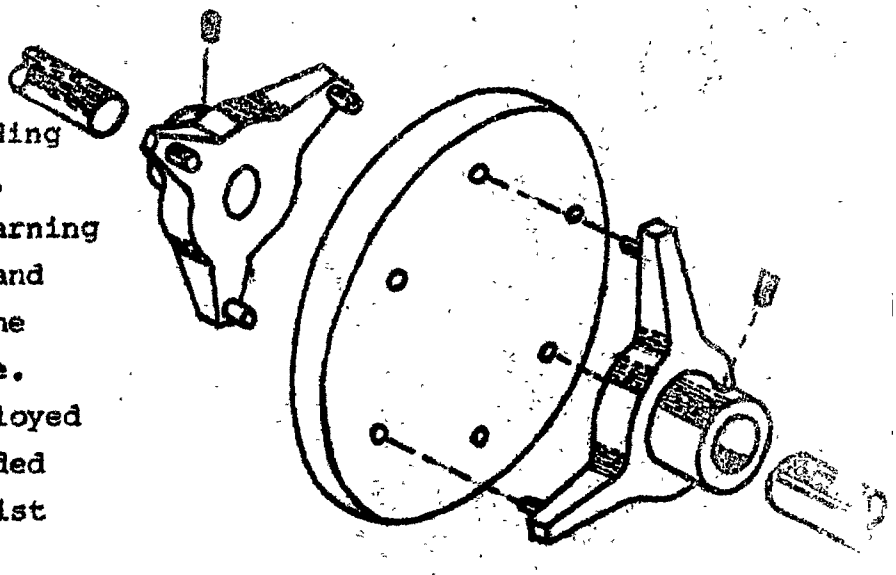
Animated chart

Animated charts can create initial attention of students, maintain interest over a considerable period of time and the distinguishing feature - one or, more moving parts - enhance its value as a teaching tool. This type of chart is very helpful when the instructor wants to indicate change of conditions or a part of any mechanism.



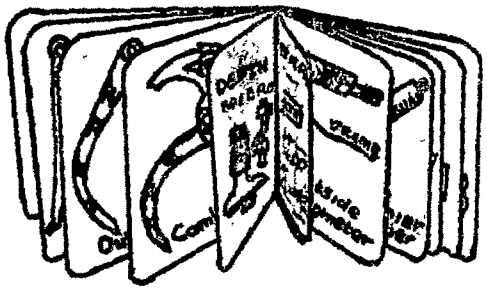
Exploded View chart

Although this is a form of pictorial chart, it is particularly useful to a beginner in the understanding of complicated mechanisms. It aids the trainee in learning how the device functions and enables him to assemble the units, taking minimum time. The various parts are deployed in the sequence and extended position in which they exist when assembled. It is a valuable form, aiding teaching and expediting learning of assembly forms.



Folding or multiple leaf chart

A very useful form of chart in the case of engines, motors and other complicated machinery. It is a unique way of showing the internal working parts of a mechanism and at the same time confine the material to a compact form. A slight variation of this is a flip chart. The flip chart is often used to present a series of topics or information as a folding chart in a sequential order. Both folding and flip charts can



MULTI LEAF CHART OF MEASURING TOOLS

be used to illustrate continuity with the aid of acetate sheets of overlays. It is a most effective way of showing the proper relationship of various parts of any mechanical device.

Why do you need charts?

Charts can explain ideas in terms of shapes, colours, lines, pictures. They can be carefully worked ahead of time to help you explain more complicated questions. They can dramatise figures and facts that might seem dull if they are merely recited verbally. The charts helps you by explaining something - your lesson materials - to your trainees. It saves time to bring prepared charts to the class.

General guidelines in preparing charts:

1. Layout the chart initially on a separate sheet.
2. Present information in an original form.
3. Use illustrations wherever possible.
4. Arrange all steps in proper sequence.
5. Keep the chart, neat and clean.
6. Do not overcrowd it with too much information.
7. Make all titles and captions clearly visible.
8. Use large size of paper for the group to see.
9. Use proper combination of colour if required.

Final tips for making charts

1. Be selective.
2. Consider the purpose. Introductory or Overview.
3. Cover only principles.

4. If it is to raise problems, you may need only unstructured visual of a problem raising nature.

5. If it is for summery, be specific.

6. If information is needed in a sequence, use a flip chart.

7. If information is too much, use more than one chart- use a series.

Learner Activities:

1. Collect samples of charts about which you have just studied from any source available.

2. Categorise them.

3. Discuss among yourselves the use of different kinds of graphs and charts.

4. Plan to use charts in your practice teaching class.

5. If you have to prepare graphs and charts in your institution, what kinds of equipment and tools are required? What material would you need as consumbale?

6. Plan in your subject area, different kinds of charts given in this unit, and make them for submission to your instructor.

7. For a specific unit of work, which is assigned to you, prepare graphs/charts as per the lesson plan prepared by you. Your work will be evaluated when you are having the practice teaching assignment.

AUDIO VISUAL EDUCATION

Module - II : Non Projected Visual Aids

Unit - 3 : Graphs and charts

Practical Exercise - 6 : GRAPHS - LINE GRAPH, BAR GRAPH, PIE GRAPH & PICTOGRAPH.

A. Problem : Preparation of graphs - Line, bar, pie and pictograph.

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1. Prepare the following types of graphs using the information furnished here.

2. Choose correct type of graph. Use different graphs for each question.

a) Typical expenditure for audio visual equipment on percentage basis for 1980 for our Institute were as follows. Make a graph.

Record players	20%
Tape recorders	20%
Opaque projectors	10%
Film strip projectors	20%
Motion picture projectors.	30%

b) The maximum and minimum temperature recorded at Meenambakkam Airport for the last week are as follows. Show them by graphic representation.

Monday	33°C - 23°C
Tuesday	36°C - 24°C
Wednesday	34°C - 23°C

Thursday	-	35°C - 25°C
Friday	-	35°C - 22°C
Saturday	-	36°C - 24°C
Sunday	-	37°C - 24°C

c. In the time table for the Instructor Training Programme the number of hours allotted are given here. Show by graph.

Practical - trade	20
Theory - trade	6
Science	2
Calculation	1
Precision measuring Instruments	2
Pedagogy	3
A.V. Theory	2
A.V. Practical	2
Engg. Drawing	3
Library	1
Test	1

d. The production of balls for the ball bearing of a factory during last five years is as follows. Show by graph.

1980	3000	
1979	2500	
1978	2000	(in thousands)
1977	1000	
1976	400	

B. Materials and equipment.

1. Paper, Tracing sheet, Ruler, Compass, Protractor, T-square.
2. HB Pencil, Coloured pencil, felt pens, Crayons.
3. Tapes, transfer letters (if available), paste up letters etc.

C. Points for grading.

1. Appropriate choice.
2. Layout planning.
3. Neatness of work.
4. Choice of colours.
5. Overall appearance.

D. Deadline for the project : May 3rd.

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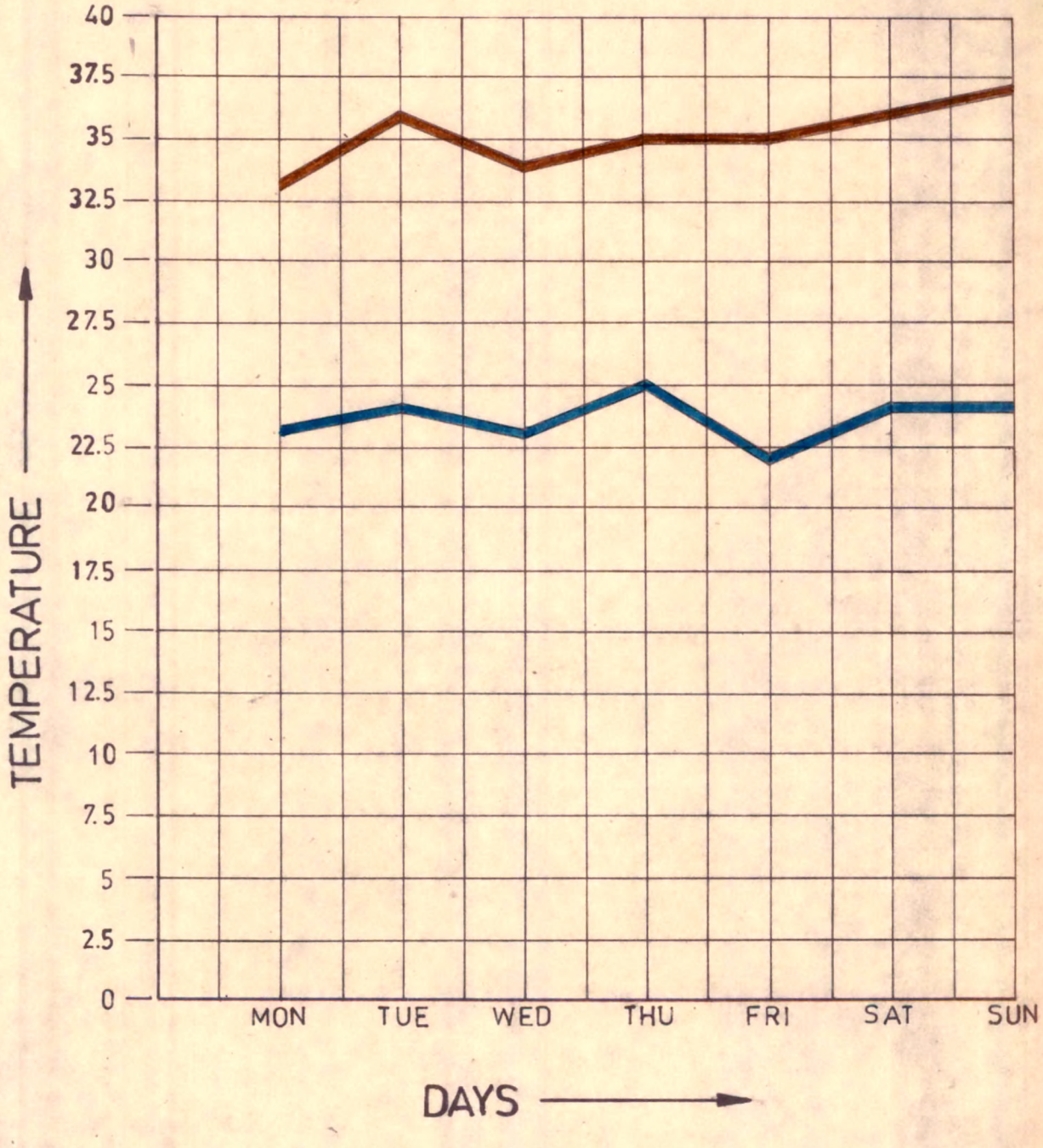
LINE GRAPH



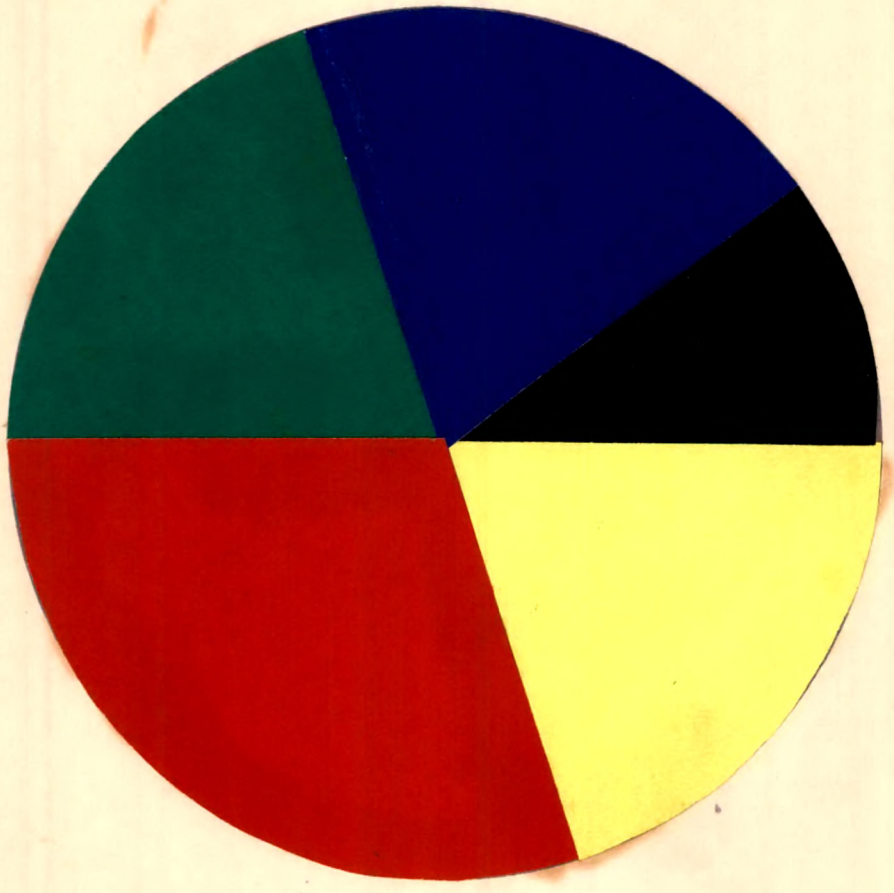
6a

BAR GRAPH

20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Practical
Theory
Science
Calculation
P.M. Instruments
Pedagogy
A.V. Theory
A.V. Practical
Engg. Drawing
Library
Test

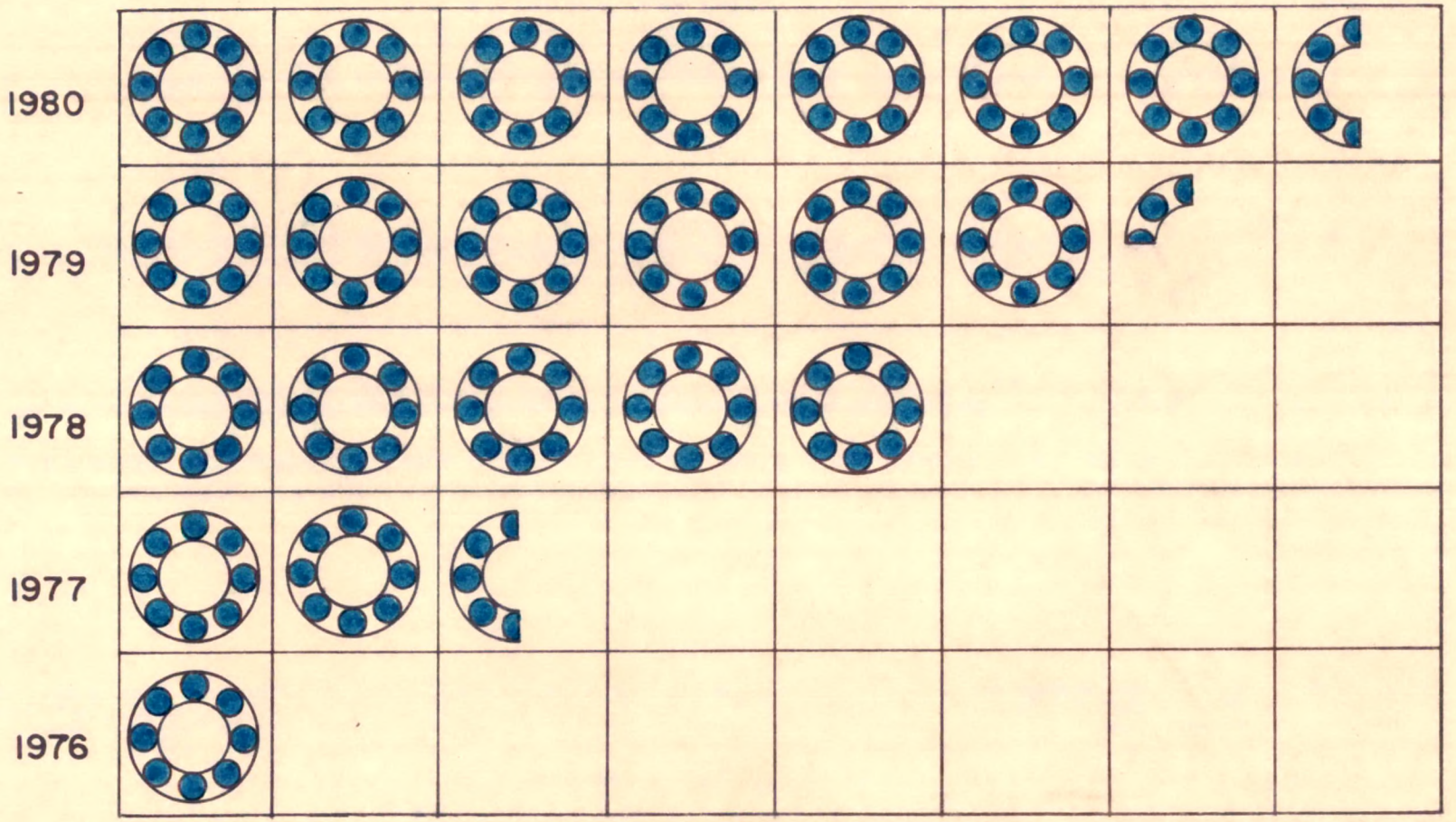
6b

PIE GRAPH



- ☐ Record Players
- ☐ Tape Recorders
- ☐ Opaque Projectors
- ☐ Film Strip Projectors
- ☐ Motion Picture Projectors

PICTORIAL GRAPH



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AUDIO VISUAL EDUCATION

Module - II : Non Projected Visual Aids.
Unit - 3 : Graphs and charts.

Practical Exercise - 7 : CHARTS - DATA CHART - PICTO CHART.

A. PROBLEM: Prepare (1) Data chart (2) Picto chart. to be used for your practice teaching, from given topics. Choose from ten illustrations that will be furnished to you by your visual aid workshop Training Officer.

B. PROCEDURE
1. Draw out line in pencil.
2. With soft pencil; shade where required.
3. Use appropriate symbols where required.
4. Write letters and numbers boldly.
5. Give a caption.
6. Write behind sheet lesson/Unit and block number.

C. MATERIALS & EQUIPMENT
1. Paper, pencil, colour pencils, ink.
2. Drawing board, Instrument, stencils, set-squares, protractor, T-square.

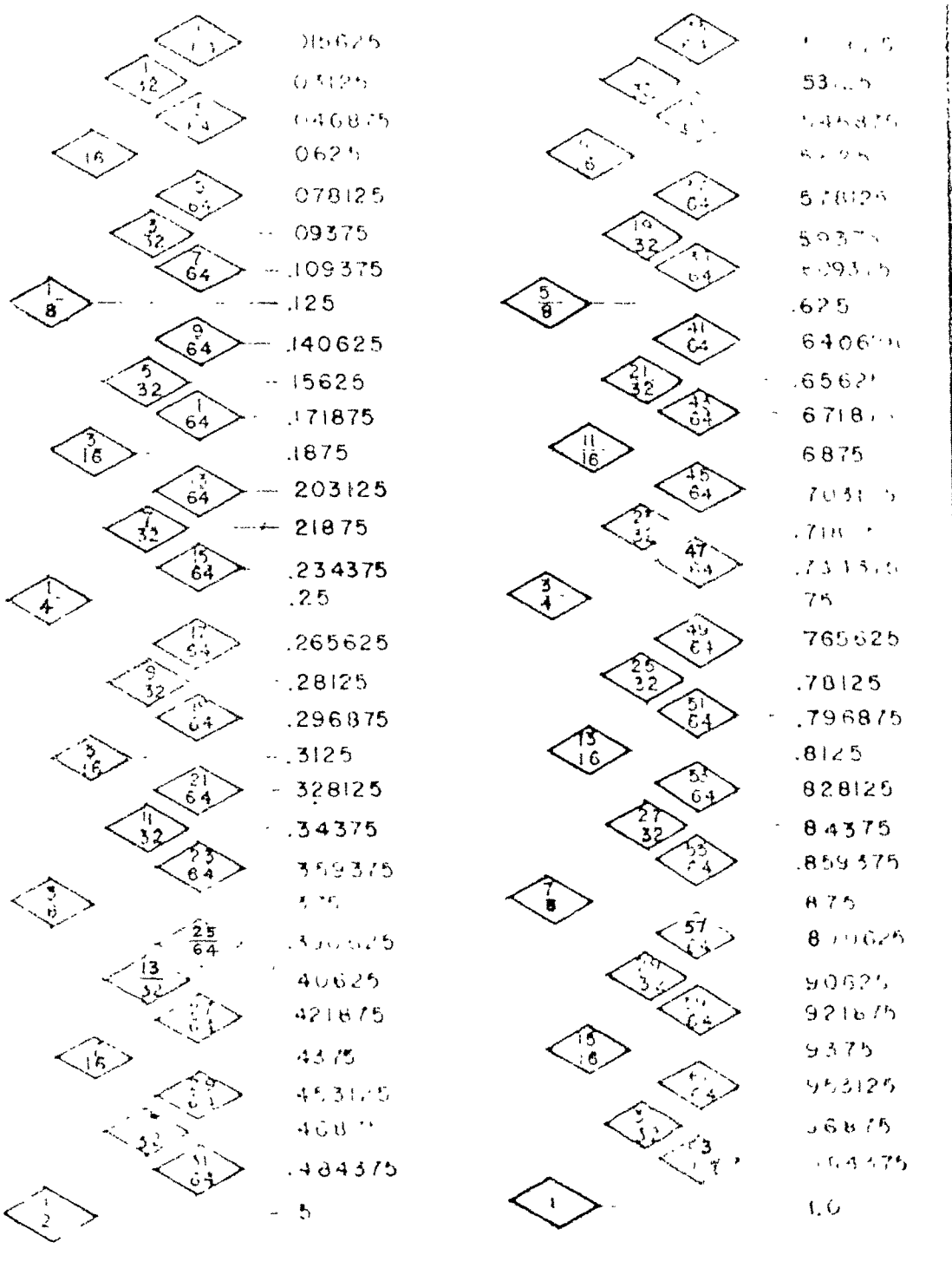
D. POINTS FOR GRADING
1. Apprpriateness of the chart.
2. Cleanliness.
3. Caption.
4. Legibility and readability of letters and numbers.
5. Use symbols if any.

6. Colour shading.
7. Uniformity line thickness.
8. Overall appearance.

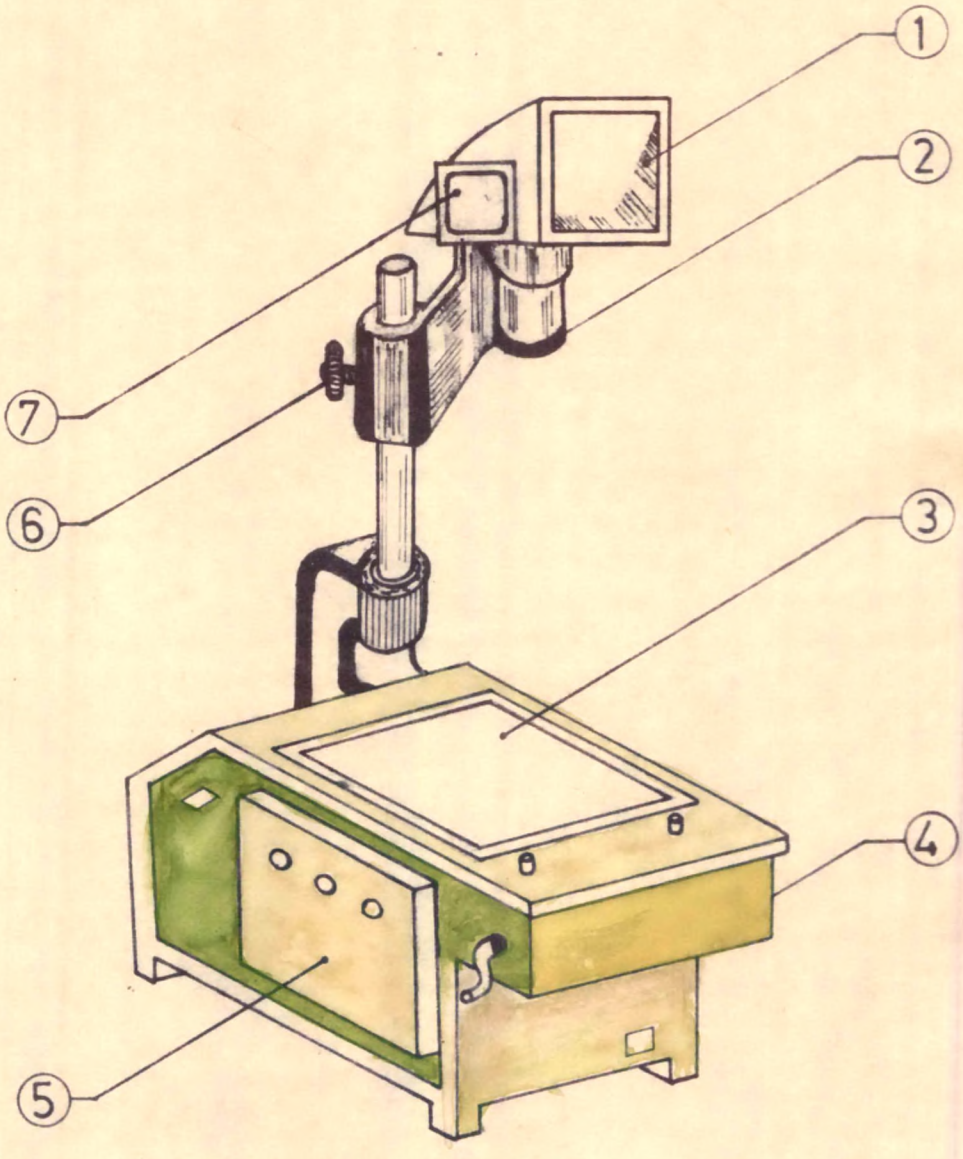
E. Deadline for the project : May 3rd.

DATA CHART

DECIMAL EQUIVALENTS



PICTORIAL CHART



1. FRONT SURFACE MIRROR
2. PROJECTION LENS
3. COVER GLASS
4. BODY OF PROJECTOR
5. SIDE DOOR
6. FOCUSSING KNOB
7. FOCUSS AID

AUDIO VISUAL EDUCATION

Module - II : Non Projected Visual Aids.

Unit - 3 : Graphs and charts.

Practical Exercise - 8 : CHARTS - SCHEMATIC CHART - DIAGRAMATIC CHART.

A. PROBLEM : Prepare (i) Schematic Chart & (ii) Diagramatic Chart to be used for your practice teaching.

Choose from ten illustrations that will be furnished to you by your Visual Aid Workshop Training Officer.

B. PROCEDURE:

1. Draw outline in pencil.
2. With soft pencil shade where required.
3. Use appropriate symbols where required.
4. Give a caption.
5. Write boldly letters and numbers, to be readable 6 Ms. away from the place of presentation.
6. Write behind the paper, the lesson/Unit/ Block number.

C. MATERIAL AND EQUIPMENT:

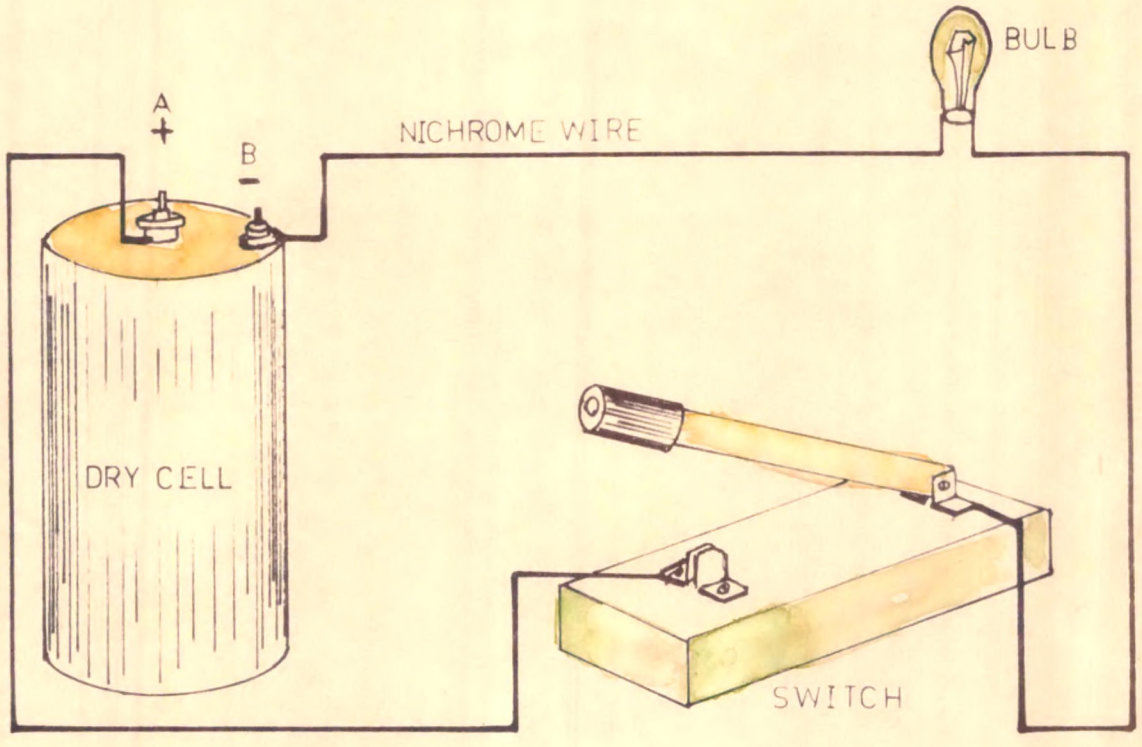
1. Paper, pencil, colour pencils, ink.
2. Drawing board, instruments, stencils.
3. T-square, set-square, protractor.

D. POINTS FOR GRADING:

1. Appropriateness of the chart.
2. Cleanliness.
3. Caption.
4. Use of symbols.
5. Colour shading.
6. Uniformity of line thickness.
7. Readability, legibility and boldness of numbers & letters.

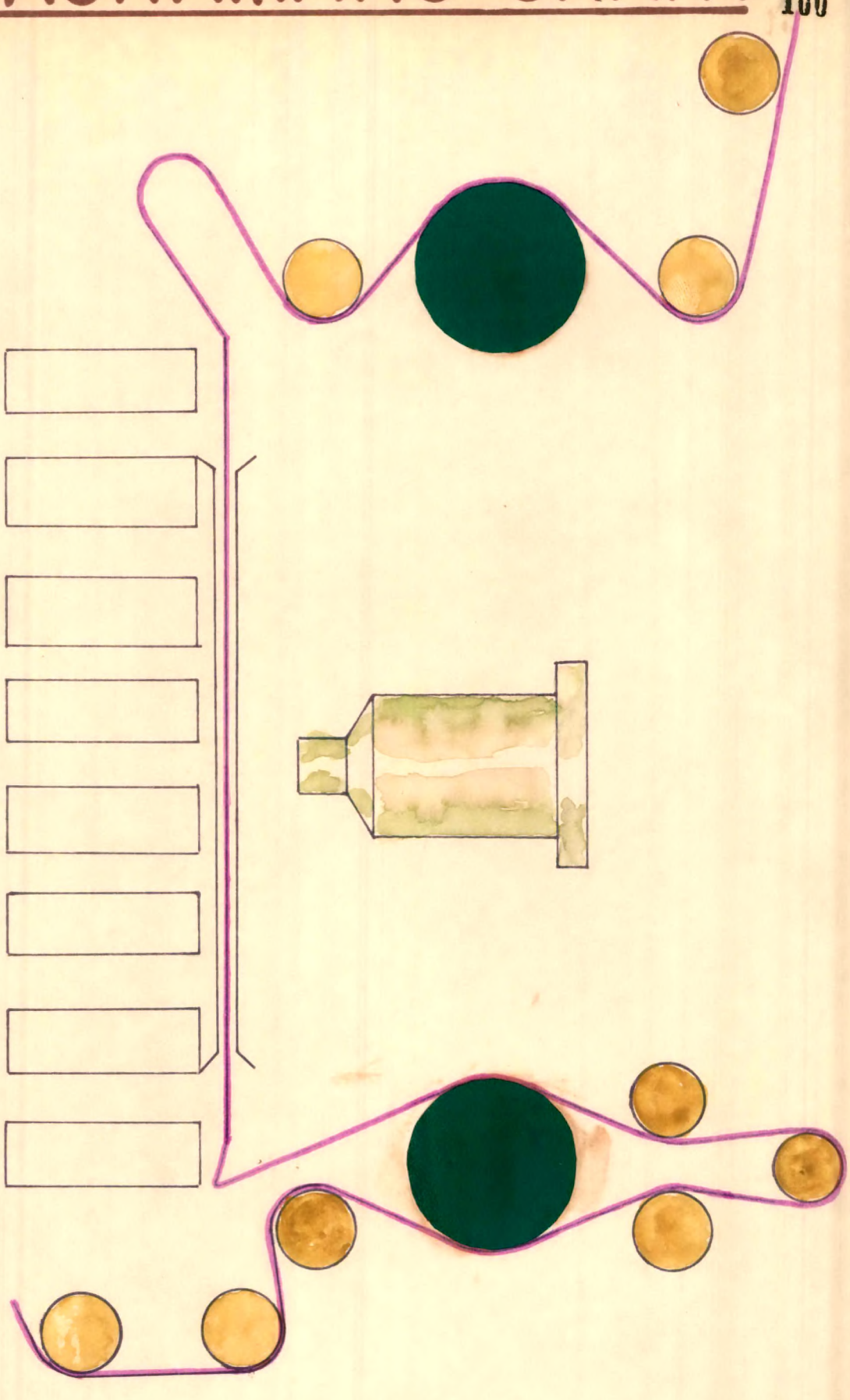
E. Deadline for the project : May 3rd.

SCHEMATIC CHART



DIAGRAMATIC CHART

100



AUDIO VISUAL EDUCATION

Module - II : Non Projected Visual Aids.

Unit - 3 : Graphs and charts.

Practical Exercise - 9 : CHARTS - TREE CHART & FLOW CHART.

A. PROBLEM : Prepare 1. Tree Chart & 2. Flow Chart to be used for your practice teaching.

Choose from ten illustrations that will be furnished to you by your Visual Aid Workshop Training Officer.

B. PROCEDURE:

1. Draw out line in pencil.
2. With soft pencil shade where required.
3. Use appropriate symbols where required.
4. Write letters and numbers boldly.
5. Give a caption.
6. Write on back of the paper, the lesson/unit/block number.

C. MATERIALS AND EQUIPMENT

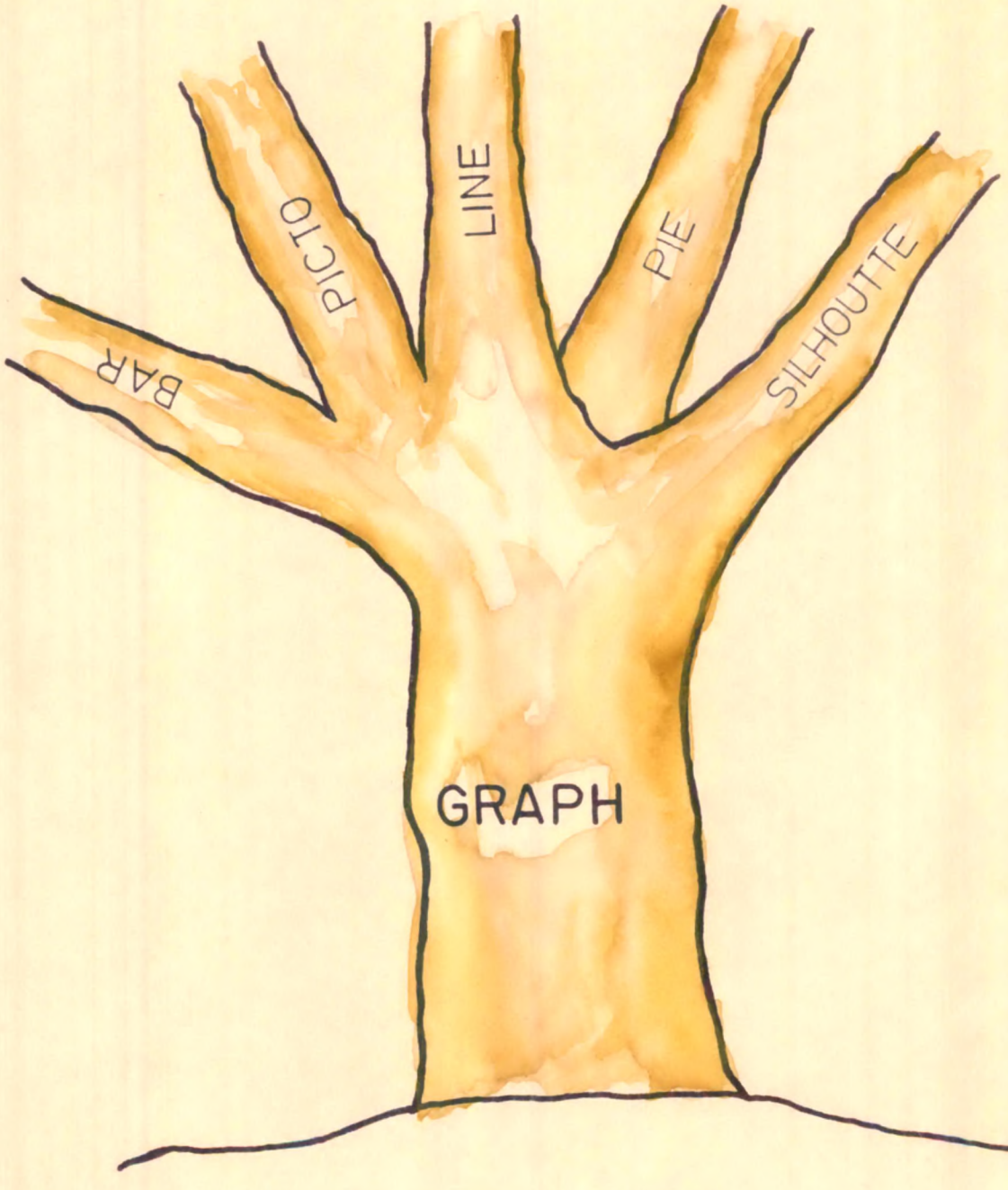
1. Paper, pencil, colour pencils, ink.
2. Drawing board, Instruments, stencil, set-square, T-square, Protractor.

D. POINTS FOR GRADING

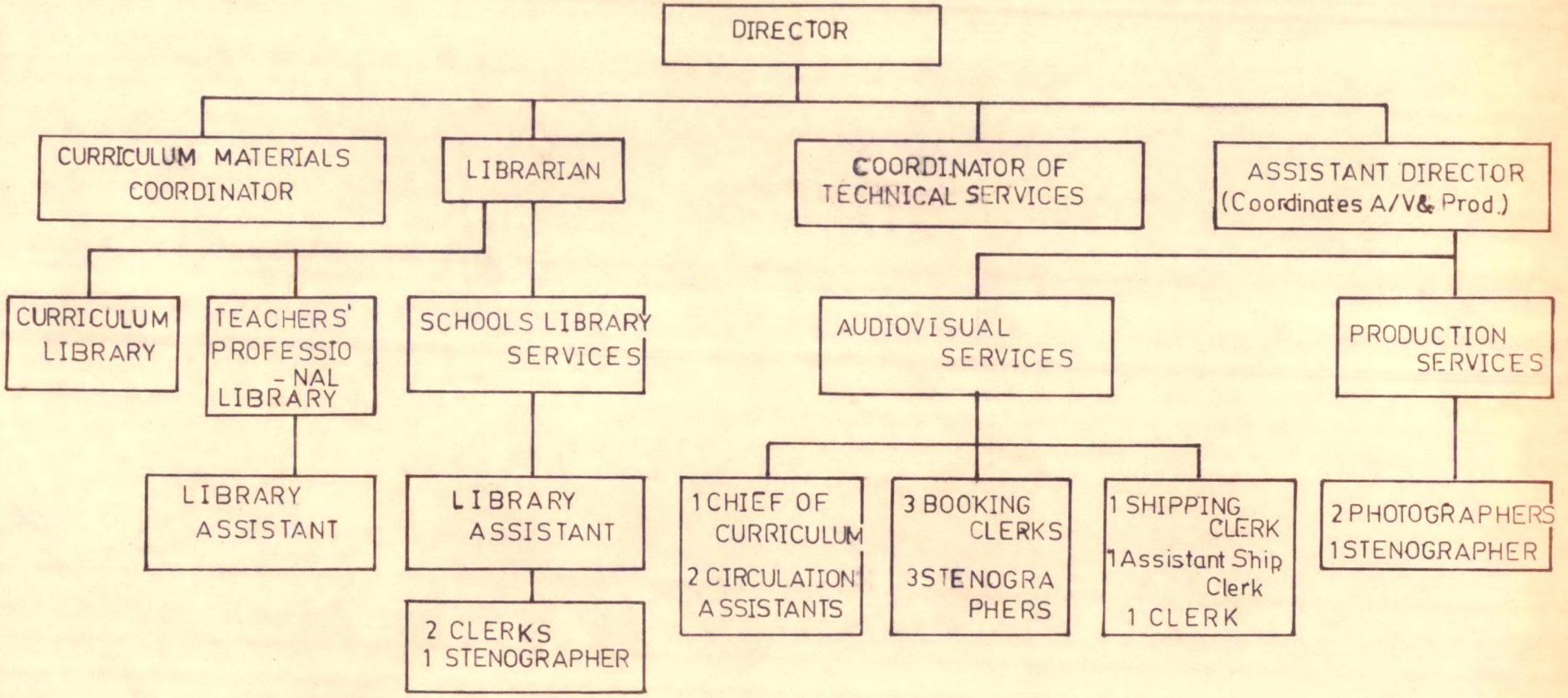
1. Appropriateness of the chart.
2. Cleanliness.
3. Caption.
4. Use of symbols.
5. Readability, legibility and boldness of letters and Numbers.
6. Colour shading.
7. Uniformity of line thickness.
8. Overall appearance.

E. Deadline for the project May 3rd.

TREE CHART



FLOW CHART


DIRECTOR
CURRICULUM MATERIALS COORDINATOR
LIBRARIAN
COORDINATOR OF TECHNICAL SERVICES
ASSISTANT DIRECTOR (Coordinates A/V& Prod.)
CURRICULUM LIBRARY
TEACHERS' PROFESSIO - NAL LIBRARY
SCHOOLS LIBRARY SERVICES
AUDIOVISUAL SERVICES
PRODUCTION SERVICES
LIBRARY ASSISTANT
LIBRARY ASSISTANT
2 CLERKS
1 STENOGRAPHER
1 CHIEF OF CURRICULUM
2 CIRCULATION ASSISTANTS
3 BOOKING CLERKS
3 STENOGRA PHERS
1 SHIPPING CLERK
1 Assistant Ship Clerk
1 CLERK
2 PHOTOGRAPHERS
1 STENOGRAPHER

(9)

AUDIO VISUAL EDUCATION

Module - II : Non Projected Visual Aids.

Unit - 3 : Graphs and Charts.

Practical Exercise - 10 : CHART - ANIMATED CHART.

A. PROBLEMS: Prepare Animated chart to be used for your practice teaching, from among 10 examples that will be furnished to you by your Visual Aid Workshop Training Officer.

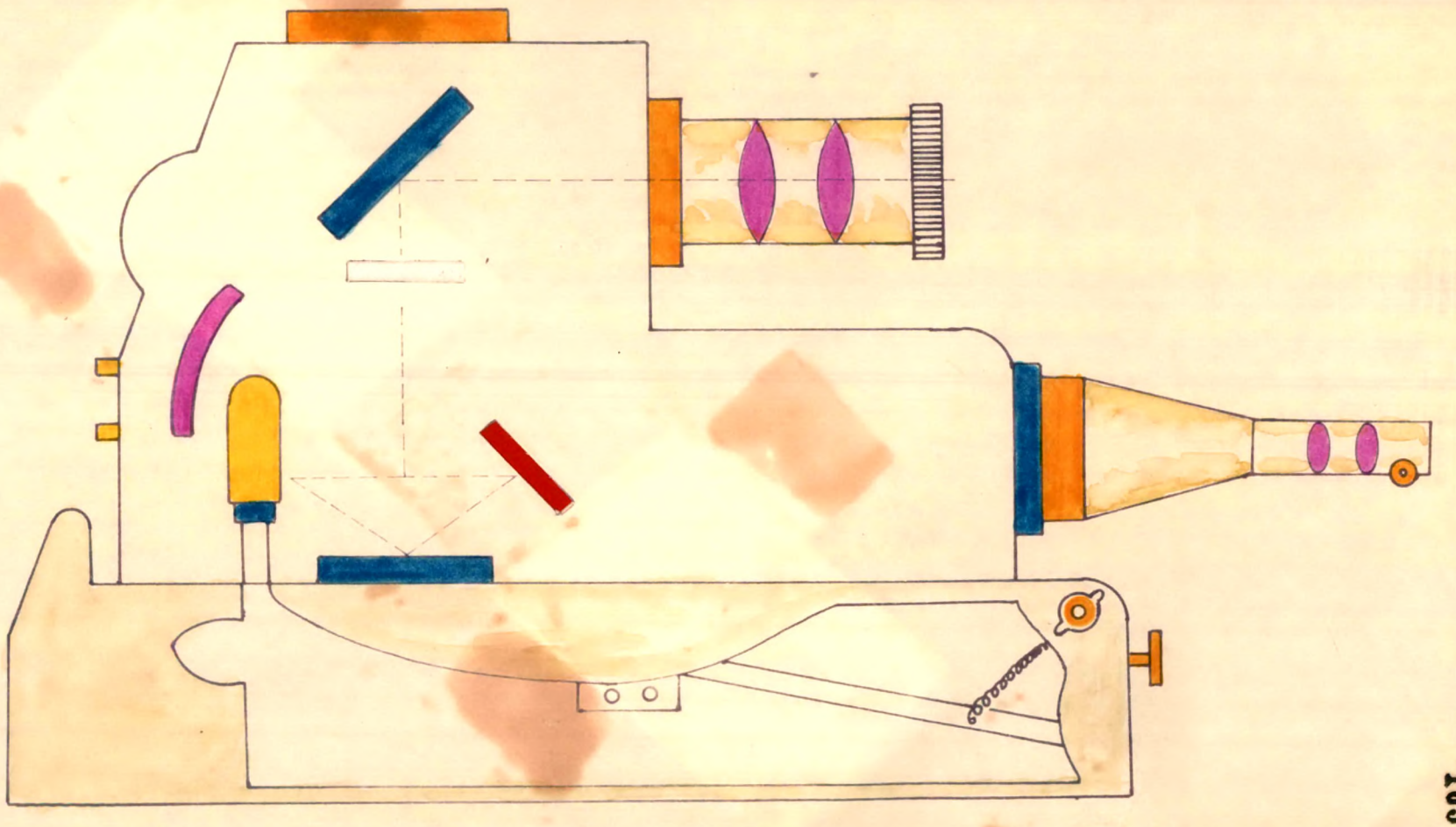
B. PROCEDURE:
1. Draw outline in pencil.
2. Write soft pencil, sahde where required.
3. Use appropriate symbols where required.
4. Write letters and numbers boldly.
5. Give a caption.
6. Write back of the paper, the lesson/unit/Block number.

C. MATERIALS AND EQUIPMENT
1. Paper, pencil, colour pencils, ink.
2. Drawing board, instruments, stencils, T-square, Protractor, set-square.

D. POINTS FOR GRADING
1. Appropriateness of the chart.
2. Clearliness.
3. Caption.
4. Use of symbols.
5. Colour shading.
6. Uniformity of line thickness.
7. Overall appearance.
8. Readability of letters and numbers from back bench of the class.

D. Deadline for the project : May 3rd.

ANIMATED CHART



AUDIO VISUAL EDUCATION

Module - II : Non Projected Visual Aids.

Unit - 3 : Graphs and charts

Practical Exercise - 11 : CHART - PHANTOM VIEW CHART.

A. PROBLEM: Prepare PHANTOM VIEW CHART to be used for your practice teaching from among ten illustrations that will be furnished to you by your Visual Aid Workshop Training Officer.

B. PROCEDURE:

1. Draw out line in pencil.
2. With soft pencil (say HB) shade where required.
3. Use appropriate symbols where required.
4. Write the name of parts in bold letters and numbers.
5. Give a caption.
6. Write back of the papers, the lesson/unit/Block number.

C. MATERIALS AND EQUIPMENT

1. Paper, Pencil, Colour pencils, Ink.
2. Drawing board, instruments, stencils.
3. Set square, T-square, protractors.

D. POINTS FOR GRADING

1. Appropriateness of the chart.
2. Cleanliness.
3. Caption.
4. Letters and numbers.
5. Use of symbols.
6. Colour shading.
7. Uniformity of line thickness.
8. Overall appearance.

E. Deadline for the project : May 3rd.

PHANTOM VIEW CHART

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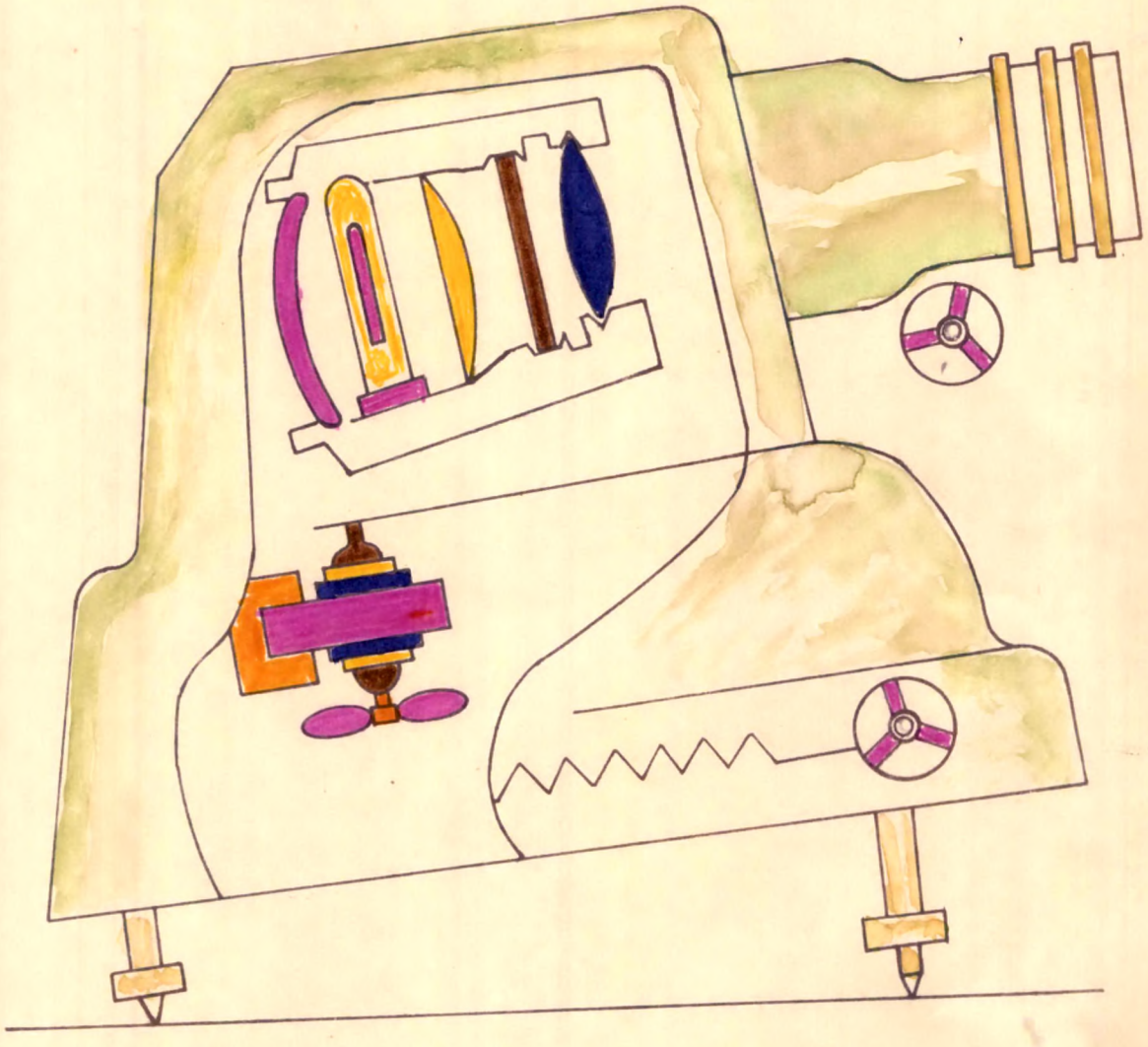


AUDIO VISUAL EDUCATION

Module - II : Non Projected Visual Aids.

Unit - 3 : Graphs and charts.

Practical Exercise - 12 : CHART - EXPLODED VIEW CHART.

A. PROBLEM: Prepare an EXPLODED CHART to be used for your practice teaching, from among the ten examples that will be furnished to you by your Visual Aid Workshop Training Officer.

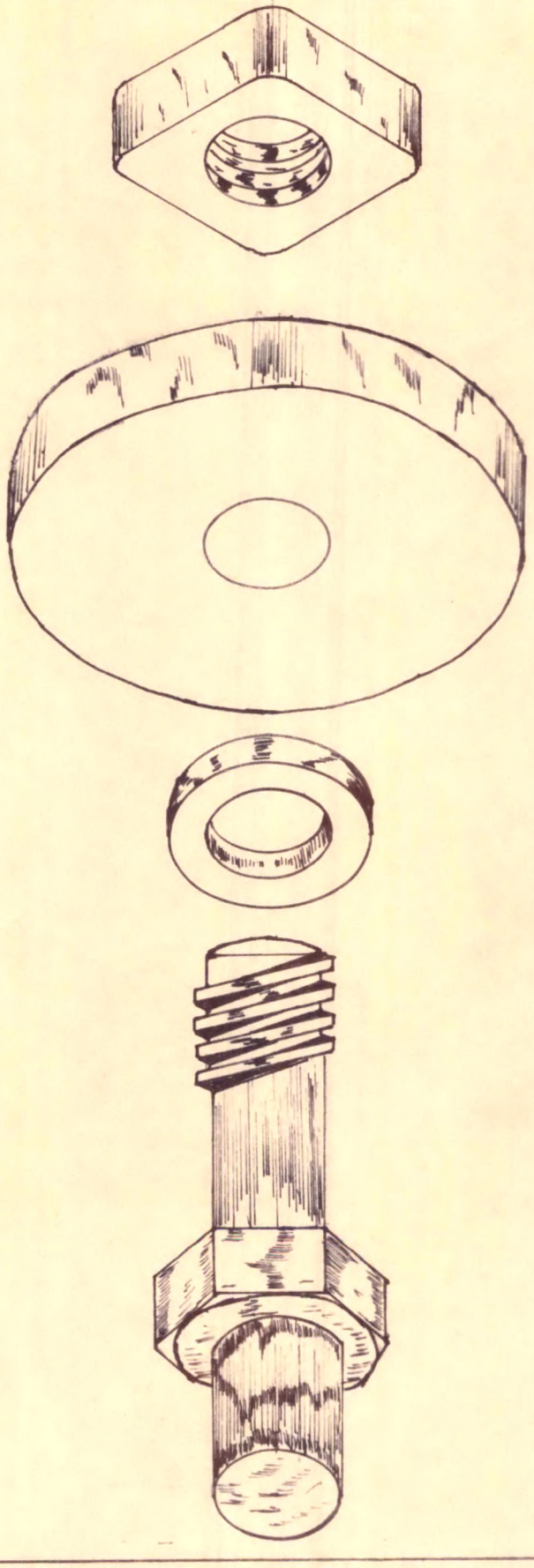
B. PROCEDURE:
1. Draw out line in pencil.
2. With soft pencil shade where required.
3. Write the name of parts, readable from a distance of 6 Ms.
4. Give caption.
5. Write back of the paper, the lesson/ unit/block number.

C. MATERIALS AND EQUIPMENT:
1. Paper, pencil, colour pencils, ink.
2. Drawing Board, Instruments, stencils, T-squares, protractor, set-square.

D. POINTS OF GRADING:
1. Appropriateness of the chart.
2. Cleanliness.
3. Caption.
4. Uses of symbols/wordings.
5. Colour shading.
6. Uniformity of line thickness.
7. Overall appearance.

E. DEADLINE for the project : May 3rd.

EXPLODED CHART



Module - II : Non Projected Visual Aids.

Unit - 3 : Graphs and charts.

Practical Exercise - 13 : CHART - FOLDING CHART.

A. PROBLEM : Prepare a FOLDING CHART to be used for your practice teaching from among ten examples that will be furnished to you your Visual Aid Workshop Training Officer.

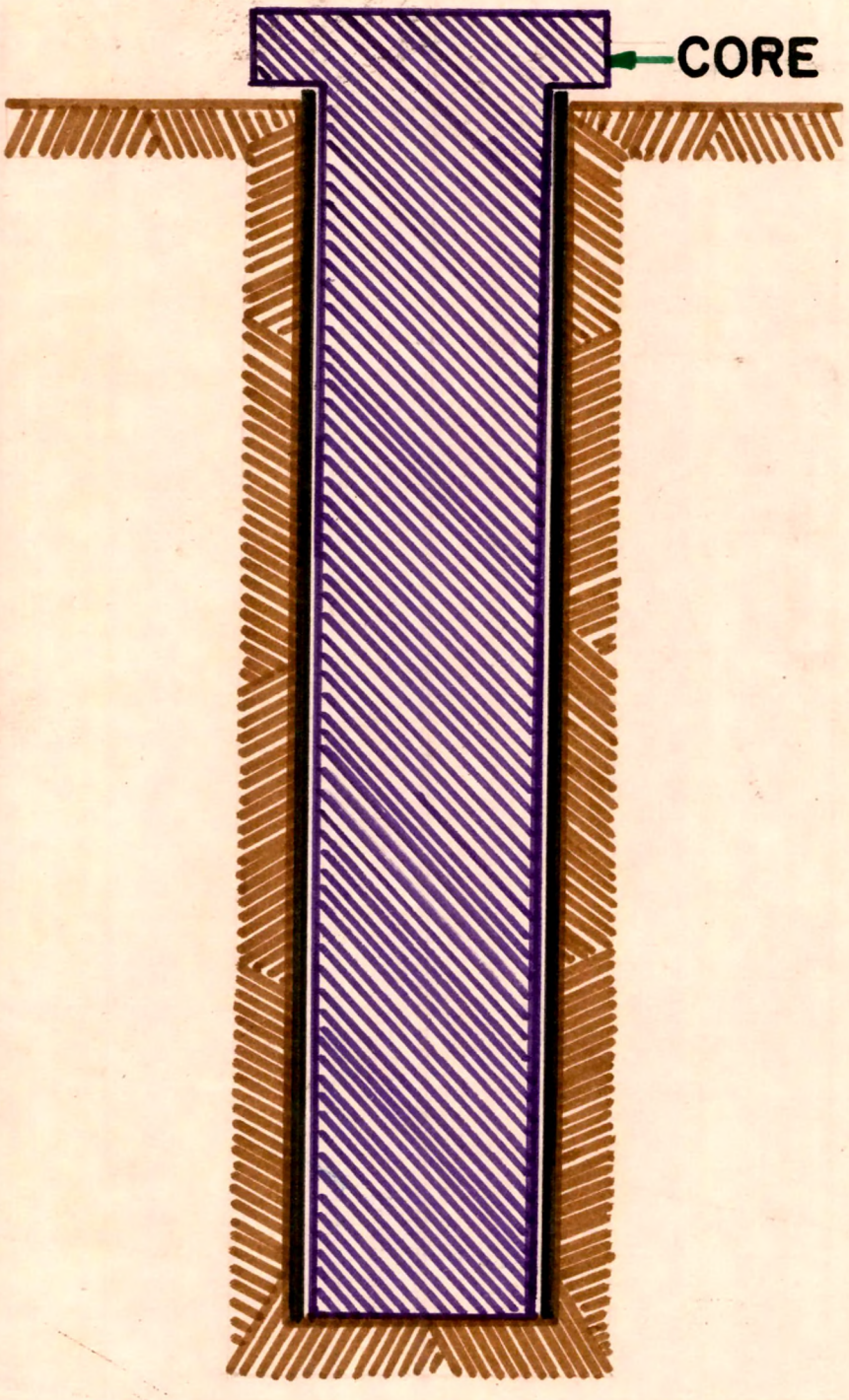
B. PROCEDURE:
1. Draw out line in pencil.
2. With soft pencil (hB) shade where required.
3. Use appropriate symbols where required.
4. Write boldly numbers and letters.
5. Use colours for better interpretation.
6. Give a caption.
7. Write back of the paper, the lesson/unit/ Block number.

C. MATERIALS AND EQUIPMENT:
1. Paper, pencil, colour pencils, ink.
2. Drawing board, Instruments, stencils, T-square, Protractor, set-square.

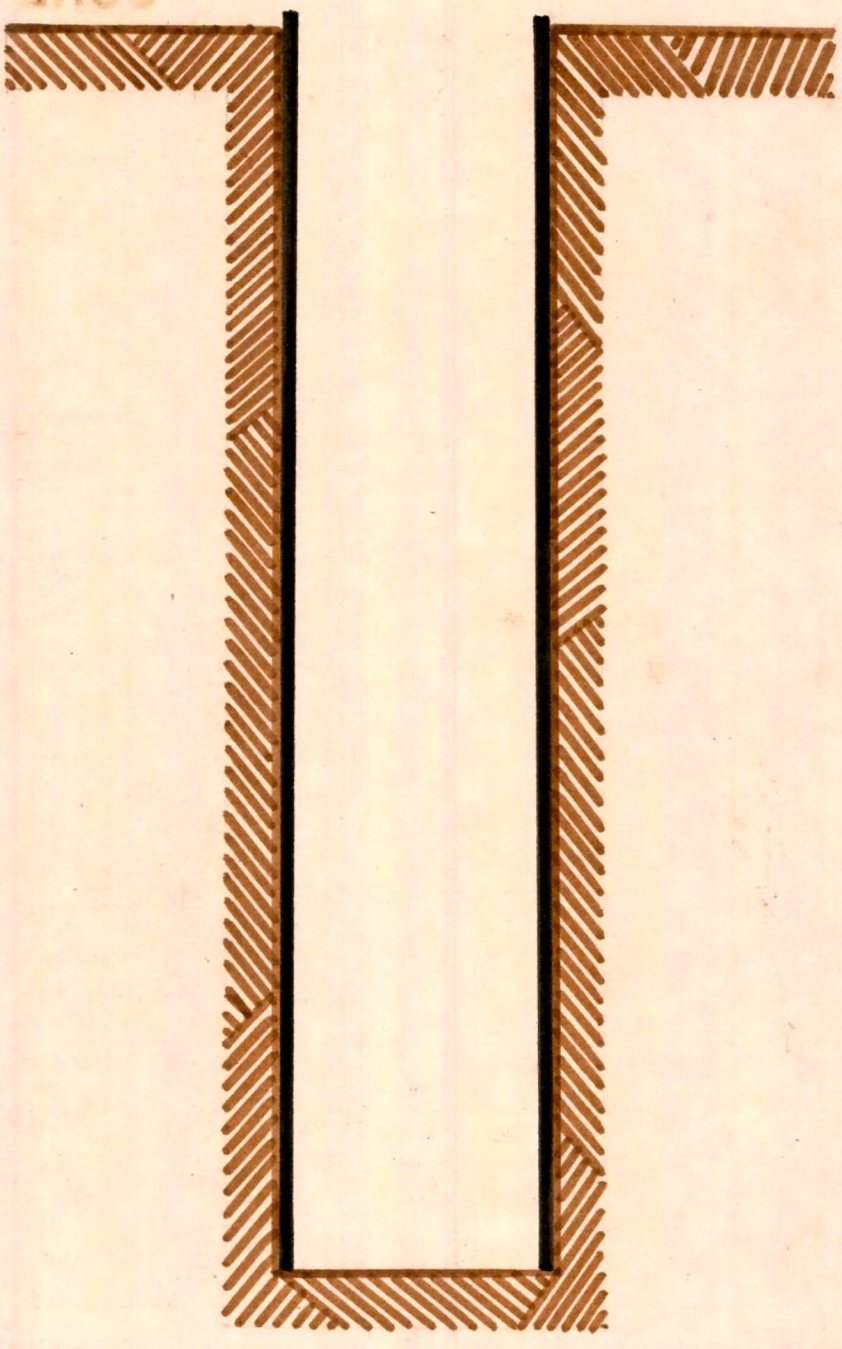
D. POINTS OF GRADING:
1. Appropriateness of the chart.
2. Cleanliness.
3. Caption.
4. Use of symbols.
5. Numbers and letters.
6. Colour shading.
7. Uniformity of line thickness.
8. Overall appearance.

E. Deadline for the project : May 3rd.

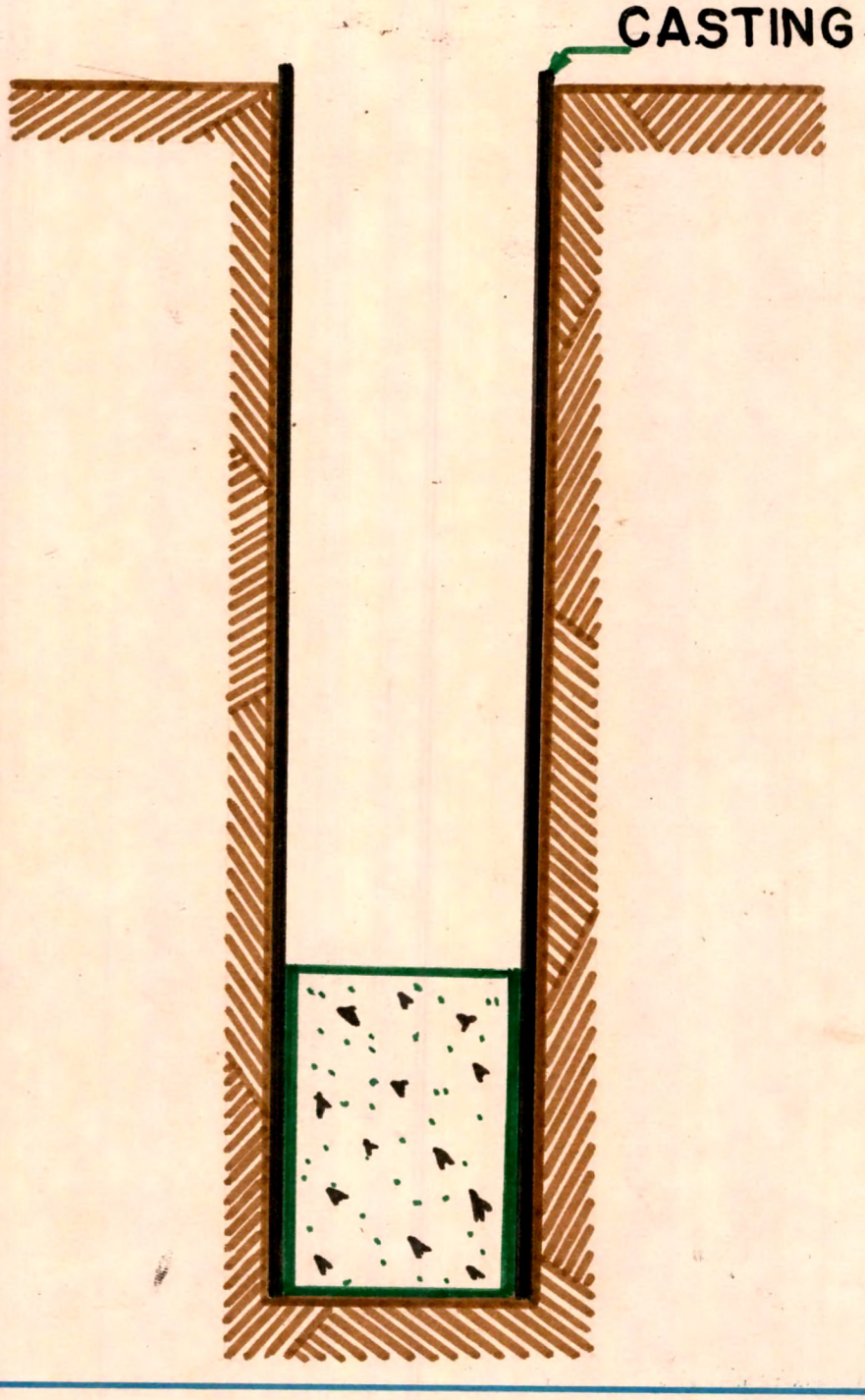
THE CORE AND CASTING ARE TOGETHER DRIVEN IN TO THE GROUND TO THE REQUIRED DEPTH.



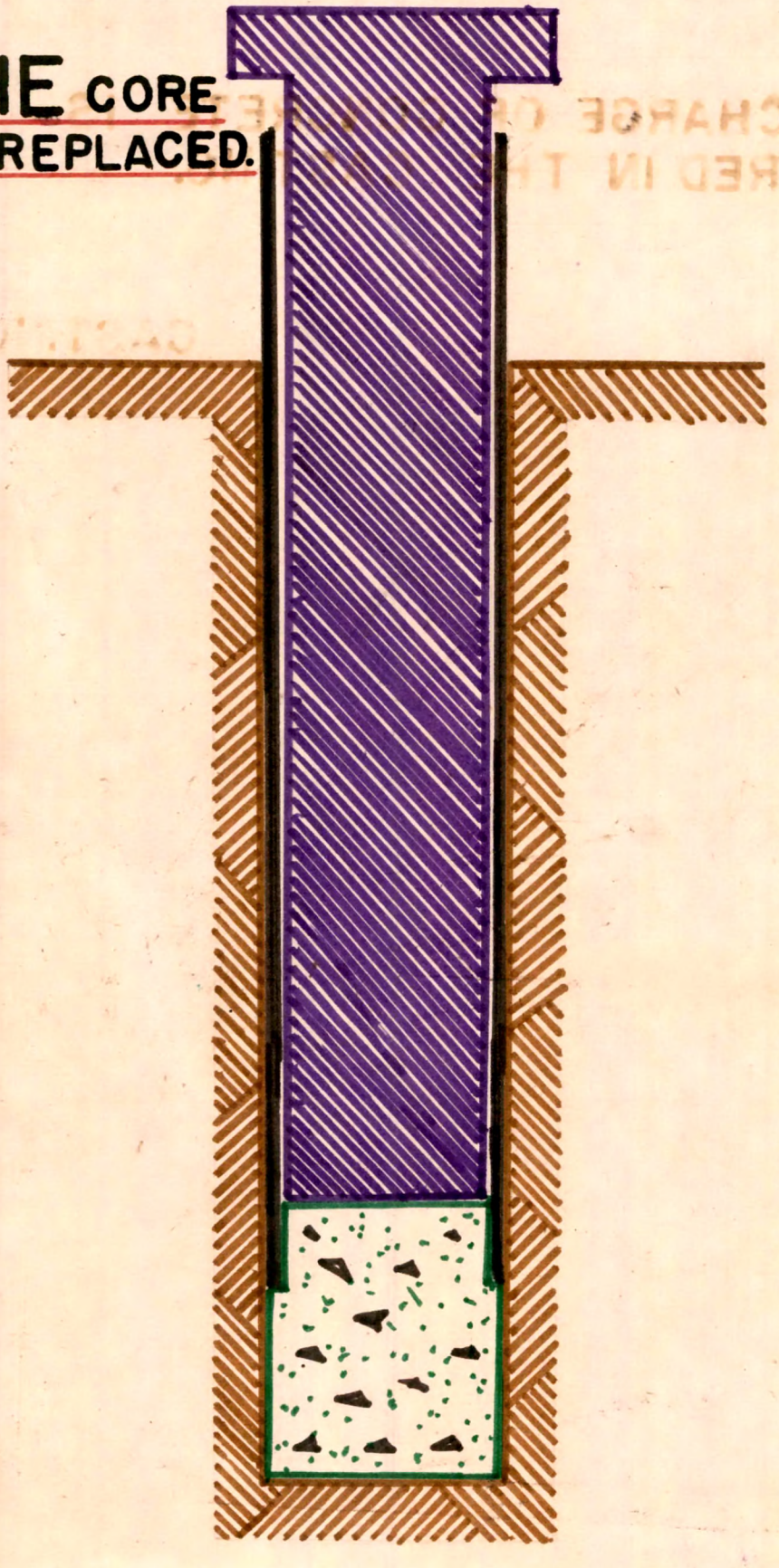
THE CORE IS REMOVED.



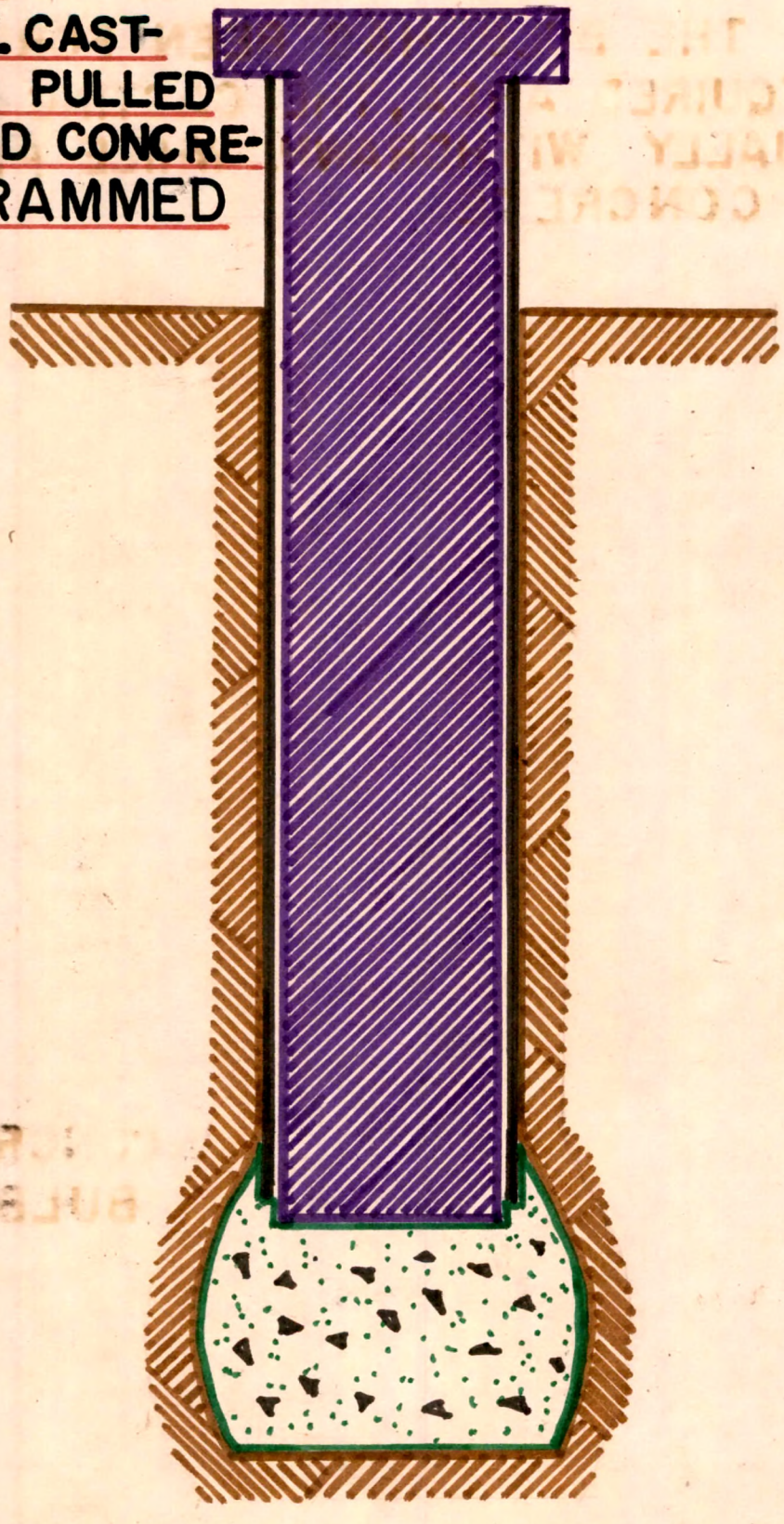
A CHARGE OF CONCRETE IS POURED IN THE CASTING.



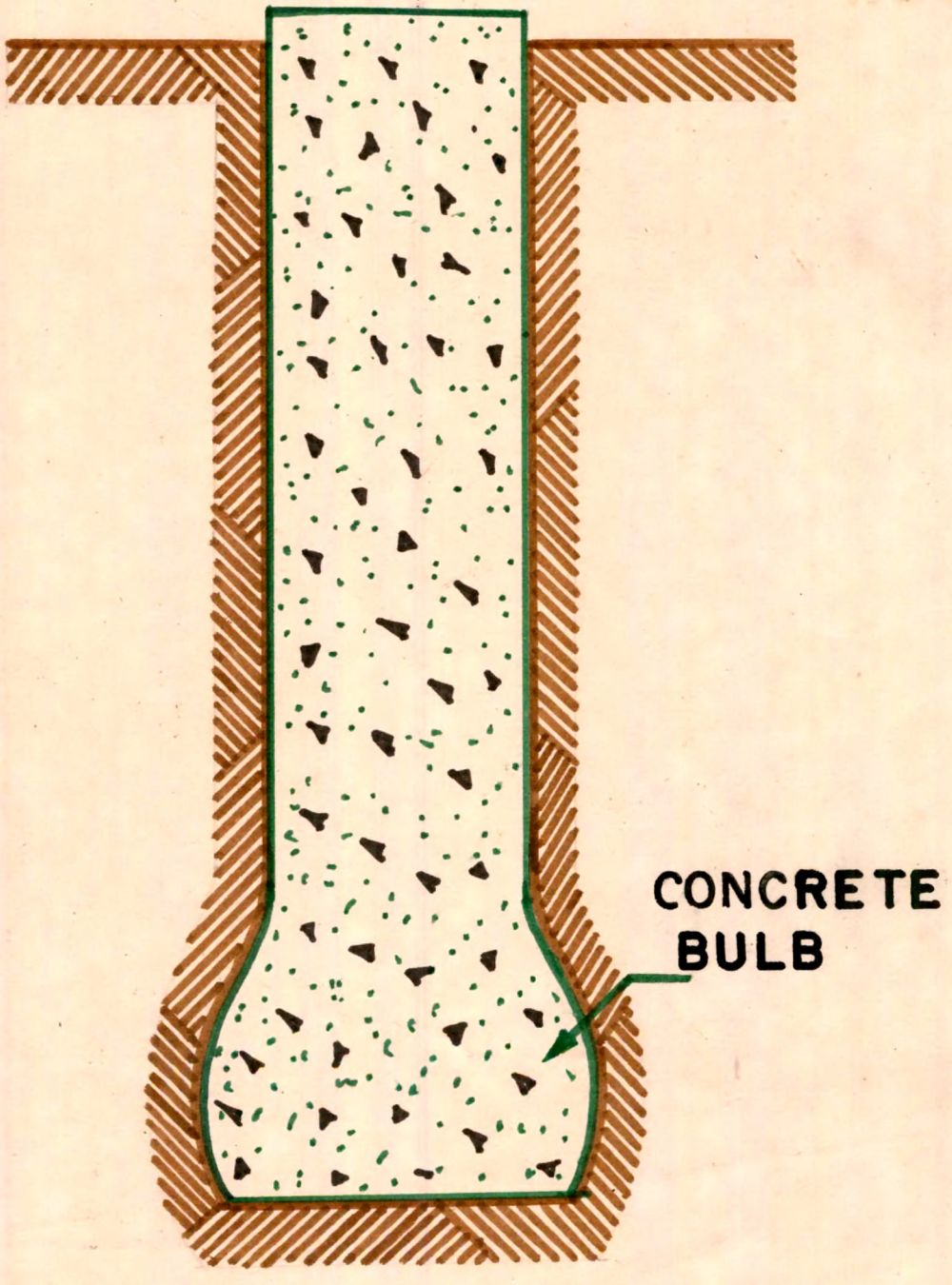
THE CORE
IS REPLACED.



THE CASTING IS PULLED UP AND CONCRETE RAMMED OUT.



THE OPERATION IS REPEATED AND WHEN THE BULB HAS BEEN FORMED TO REQUIRED AREA, THE CASTING IS GRADUALLY WITHDRAWN, WHILE FILLING WITH CONCRETE



CONSTRUCTION OF MacArthur Pedestal Pile