1. PLAN YOUR LESSON

INTRODUCTION

Training is a systematic process which aims to improve the knowledge, skill, and attitude of an individual. For all training activities a clearly defined purpose is necessary. As a trainer one must understand the intention of the training and the outcome to be achieved. Systematically planned work will yield a successful result. An Instructor, who is responsible for imparting quality training and capacity building of skilled trainees need to understand the intention of teaching a lesson and the outcome to be achieved in order to plan the instruction systematically.

Instruction is a goal oriented pre-planned teaching process. Planning of a lesson should be one of the most practical and constant concerns of all Instructors. Planning is thinking, bringing sound general ideas upon a particular situation. The better one thinks comprehensively and will be able to plan systematically and successfully! This topic aims to describe the importance of planning a lesson, simple format of a lesson plan, various components and steps involved in preparing a lesson plan, advantages of planning a lesson, and few models of lesson plan and demo plan.

IMPORTANCE OF PLANNING A LESSON

Lesson is a body of instruction, in which the learning material to be presented must be highly structured to ensure active participation of the learners. The reason why you should plan a lesson systematically is that it allows you to think about the problem for more comprehensively and discriminately, so that you can produce a better practical result.

The important reasons of planning a lesson are:

- It ensures you the right allocation of teaching time to each topic.
- It allows you to bring your subject matter up-to-date.
- It assures you the intended outcome through the well written objectives.
- It builds you to revise and modify the teaching material in the light of previous performance and past experience gained
- It helps you to prevent unnecessary overlapping of subjects, lessons, and repetition of information.
- It makes you think that each lesson can be prepared as part of a logical progression.

Moreover, adequate planning boosts your self-confidence in your ability to teach in an interesting, effective and efficient way!

LESSON AND LESSON PLAN

'Lesson' is defined as a period of instruction in which learners are taught about a particular subject. Lesson is a smallest part of a unit of instruction prepared after analyzing the syllabus. A lesson should not be too much, too less for a single sitting class. It must be sufficient to understand and digest. 'Lesson Plan' is a detailed description of the individual lesson that a teacher plans to teach on a scheduled day. Lesson plan contains the important information to be imparted about a lesson in the class and the other activities to be followed during presentation. A lesson plan traditionally includes the name of the lesson, the date of the lesson, the objective the lesson focuses on, the materials that will be used, and a summary of all the activities that will be used. Each lesson plan must have link with previous lesson and next lesson.

While there are many formats for a lesson plan followed by Herbart, Glover, Fuller, Morrison, McMurray, Dewey, Bloom, Hunter, etc. most lesson plans contain some or all of these elements, typically in this order:

- Title of the lesson
- The amount of time required to complete the lesson
- A list of required materials
- A list of objectives
- Review of previous lesson and previous knowledge
- Motivation
- Relevant visual aids for effective teaching
- Subject matter, information points, and hints reference to the contents
- Summary, which is an opportunity for a teacher to wrap-up the discussion and for the learners to pose unanswered questions
- Test by which the effectiveness of teaching and the understanding level of the learners will be known

Johann Friedrich Herbart (1776 -1841) was a German philosopher, psychologist and educational reformer noted for his contributions in laying the foundations of scientific study of education, gave new ideas about the teaching process. He meant that the knowledge imparted to the learners should be implemented into action in the actual life of the learners. Influenced by the educational theories of Herbart, Charles A. McMurray (1857-1929) and Frank W. McMurray (1862 -1936) commonly known as the 'McMurrays' (who made a remarkable contribution to curriculum development and teacher education in US), strongly recommended Herbart's instruction that, 'a good teachers must plan and prepare well before teaching'.

Herbart's method of lesson plan consists of five steps: (1) Preparation (2) Presentation (3) Comparison and Association (4) Generalization, and (5) Application. Though the five step method emphasis important features of good teaching, but it is not applicable as a whole to all teaching situations and at all levels of instruction. In the present scenario one has to give importance to the teacher's creativity in planning, innovation in teaching, and time factor, a lesson plan can be a simple one!

THE MAJOR COMPONENTS OF A LESSON PLAN

A simple method of planning a lesson is 'four-step' lesson plan method. The major components of a lesson plan are:

(1) Preparation
(2) Presentation
(3) Application, and
(4) Testing

Step – 1: Preparation

The first step of a lesson plan is preparation. Preparation includes both instructor's preparation as well as the learner's preparation. You must prepare yourself to state the objectives clearly. The duration of quality time of teaching depends on clearly stated objectives. If the objectives are not clear, the teaching time may exceed more than the allotted time. The learner's participation can be invited by asking introductory questions, and thought provoking questions. You may ask questions to link the learner's previous knowledge to the present topic. You can motivate the learners by telling the purpose of learning of the particular lesson with suitable examples. In preparation stage you must remember following points:

- Precise title of the lesson
- Instructional objectives to be achieved after instruction
- Essential teaching aids
- Create willingness to learn by appropriate motivation
- Review previous knowledge to connect the present lesson
- Selection of teaching methods
- Planning for learner participation for active learning
- Assignment to be given
- Over all time required for teaching and
- Feedback activities

Proper planning leads to success. Instructor has the responsibility to improve the knowledge, skill, and attitude of the learner. You have to mould the trainees from unskilled level to skilled level. The success of moulding proficient and competent trainees depends on your experience in teaching

learning processes. The successful planning in a teaching learning processes also includes planning the practical or shop floor activities in addition to the classroom activities. As an instructor you must give importance to:

- Workshop or practical lab, where the practical skill will be performed
- Arrangement of required tools, equipments, and materials needed
- Checking the working condition of the equipments
- Selection of work area and allotment of place for trainees to perform practical work
- Issuing of necessary tools, equipment and raw materials to the trainees
- Instructional materials such as information sheets, assignment sheet, job sheet, operation sheet required
- Safety procedure to be followed in case of practical / machining work
- Evaluation process to check the trainee's performance

Step – 2: Presentation

In the preparation step the learners are prepared to learn a lesson. In the presentation step you should present the information in sequence, simple to complex. As per the objectives you must present the topics, developments, information points, hints step by step in a systematic and effective way. You should teach the lesson by associating the present information with the subject or lesson already taught. If it is a first lesson, you can relate the previous or basic knowledge which they have. You should confirm whether the learners are following properly. Eye contact is important. See all the faces and teach to the whole class interestingly. The more the stimulus, the more will be the response. Stimulate the learners by giving examples, showing models, and other visual aids. Use visual aids in the appropriate time. Do not show the visual aids at the end after completing your lecture. Ask questions time to time. Questioning is not only at the end of the teaching process. It can be at all the stages. By asking questions, with their response you can get satisfaction that the learners are following what you are teaching! If required, you can put more efforts to make them understand the subject well, by explaining the subject more comprehensive and using visual aids. The learner's ability to understand the subject depends on the effective presentation skill of an instructor. So prepare well to present well! For effective presentation, teaching practice guidelines are listed in the Appendix C which may be referred.

Step – 3: Application

The third step- application is the most important step in teaching learning process. As an efficient communicator you might have presented the lesson or demonstration well. But it is important to know the effectiveness of teaching. To what extent the intended outcome is achieved. Unless your teaching makes the learners to understand and gain thorough knowledge, the

purpose of teaching will fail. Learners learn at different rates. All will not have same capacity to learn. Some learners will understand the subject well and store the knowledge gained in their permanent memory. Whereas some of them may store in their cache memory, in which they will forget as soon as you finish your teaching! Therefore it is your responsibility to check the learners how much they followed your presentation, and learnt new knowledge. After presentation it is desirable to provide opportunity to apply the learners' knowledge which they have gained. If theory, ask simple and direct questions, probing questing, connected to the lesson. If practical demonstration, you may ask the learners to imitate the demonstration. If the learners are given opportunity to apply the knowledge and skill gained, they will not forget easily the subject you taught. Your presentation will also be successful!

Step – 4: Testing

The fourth step- testing is considered as the most essential one in any teaching learning situation. The quality and quantity of achievement is determined at this step. Test is a tool to evaluate the knowledge as well as the skill level of a learner. Evaluation is a process to find out to what extend the instructional objectives are achieved by the learners. Teaching or training one must be meaningful only when the learner has completely acquired the intended knowledge and skill. Therefore, as an instructor your responsibility is not only effective teaching but also to determine the abilities attained by the learners. The test may be written, oral or performance. It is important to you to know how much your teaching is successful, and also to the learners where they are standing in their class. After the test, evaluation must be done. Through evaluation you must try to bring the average and below average students to above average and excellent levels.

THE MINOR COMPONENTS OF A LESSON PLAN

The major components Preparation, Presentation, Application, and Testing have minor components that are explained further:

(1) Title

Indicate the lesson heading or title clearly.

(2) Objectives

Objectives are intended outcome of a teaching learning process. Intended outcome is, after teaching a lesson what the learner will be able to achieve. For a lesson, there must be three or four objectives which covers the 'must know knowledge' of the subject matter. If the objectives are more, the matter to be taught may be too much for the learner and if the objectives are too few, there may not be sufficient materials for the Instructor to impart during the

period. To teach a theory lesson, 30 to 40 minutes may be allotted. Continuous theory teaching leads to mental fatigue and reduce in the rate of learning among the learners. For a practical demonstration, required time may be allotted.

While stating the objectives, ambiguous statements must be avoided. Ambiguous statements are the terms which are not clear and not measurable. For example if you write an objective as: at the end of the lesson the learner will be able to *know the subject*, or *understand the lesson,* the terms mentioned are not measurable. To what extent he knows; how much he understands? Objectives must be written with measurable terms. For a theory lesson, the Instructional Objectives are- the learner will be able to: Define Ohm's law, Explain the principles of projection, Differentiate first angle and third angle projection, Describe topology, etc. For practical skill demonstration plan, the Behavioural Objectives may be written as: Create a document, Type a letter, Stitch a garment, etc. according to your trade. Objectives should be stated clearly in terms of what the learner is expected to learn from a lesson. Following chapters illustrates proper way of writing objectives and use of action verbs in detail.

(3) Teaching Aids

Senses are the gateway of knowledge. Learning becomes easier, interesting and deeper, when multiple senses of the learner are employed. In a teaching learning process, teaching aids plays very important role to create interest, make the learners to understand difficult subject. You may prepare and use visual aids such as models, pictures, charts, etc. and other objects to make the learning environment more realistic. Use of charts, models, films, and projector slide shows would help the learner to see besides listening. The items that you have selected and planned to use in the classroom to support the presentation must be listed in the lesson plan.

(4) Introduction

Method of introducing the new lesson in the class must be written briefly. Depending on the subject matter of the lesson and its relation to previous lesson, you have to use this as a link between the known to unknown. It is the stage that effective motivation is done to insist in the learner and keen desire to the new lesson. Introduction does not have to be a long one. A few relevant points properly developed with realistic examples, which the learner can understand would serve the purpose. The success or failure of the presentation of a lesson would be a large extent depends in the manner in which the introduction to the lesson or preparation of the learner is done. Under review and motivation only brief notes are to be written in the lesson plan with the help of which you should be in a position to explain while presenting the lesson.

(5) Review

The fact that the learners are physically present in the class does not necessarily mean that they are mentally ready to receive your presentation. Before teaching a new lesson to the class, you should make the learners to be ready or prepared to receive, the new lesson. As part of the preparation, one of the first things you have to do in a class is to discuss the important topics of the previous lesson. Here you can ask questions about the previous lessons to make sure that the learners have remembered what you taught in the previous class. You may tell the importance of present lesson with previous lesson by linking the main points. If the lesson is a first lesson in a class, in that case instead of linking previous lesson, you can review the previous knowledge gained by the learners.

(6) Motivation

Motivation is creating willingness. As an instructor, you must create interest and willingness towards learning by telling the purpose of learning with suitable examples. Method of creating interest in the minds of learner to learn the new lesson must be written briefly.

(7) Presentation

After preparation, presentation of the subject matter of the lesson is to be followed. In a lesson plan format, the presentation stage consists of three columns namely, *Topic, Information Point,* and *Spot Hints.* By referring the objectives which are stated in the preparation step, each topic must be explained briefly in a logical sequence. Brief hints, formula, symbols may be added in the hints column. You need to write the information in brief. Detailed explanation may be given in the information sheet or notes of lesson which you need to prepare for each lesson plan.

(8) Topics

The important points of the lesson as planned are to be developed with catchwords written clearly so that you can refer and pickup at a glance. Complete information need not be written under the topic column. Selected topics according to the lesson to be taken so as to reach the aim or fulfill the objectives of the lesson. This has to be written in sequential order.

(9) Information Points

You need to write the must know information of each topic properly. Information may be written in the space provided in brief, step by step procedure with reference to the objectives and topics.

(10) Spot Hints

You need to enter spot hints in the appropriate place. Write hints such as codes, symbols or simple diagrams to attract the learner's attention and make the instruction as effective as possible. Hints can be given through charts, models or abbreviations that can make you convenient or familiar, that all your efforts are directed towards better teaching. For instruction at a particular stage of development of the lesson a chart is to be shown, may indicate in the hints column as 'Chart'. If a question is to be asked during the presentation, the indication may be 'Question' or a key word as the entire plan is made and used by you in the presentation stage. Display of teaching aids in an appropriate time is very important.

(11) Application

Learning takes place only when the learner has an opportunity to apply the knowledge to various situations. Necessary time for applications of knowledge may not be available in the class during presentation. Hence the manner in which such opportunities are provided in respect of the subject matter covered in the lesson must be stated in the application stage. There is a separate step for test and assignment, so avoid asking complicated questions at this stage. Ask simple and direct questions related to the topics. This is an opportunity for the learners to answer the questions and showing their level of understanding. You may clarify the learners' doubt. Interact with them. After questioning, remember to **Receive** the answer (yes, yes, nodding your head, etc.), **Reward** the answer (good, very good, etc.), and **Repeat** the answer.

(12) Summary

After the presentation, and interaction, you may feel good that your learners followed your instruction, and understand the lesson. Now this is a time to sum up all the important topics of the lesson taught in the class. In the summary time, you must emphasis and reinforce the points, which are important to the lesson. Main topics of the lesson may be written under summary or you can recapitulate the main points of the lesson.

(13) Test

At this step, comprehensive questions about the lesson taken should be asked to the learners. This can be done either by oral or in written form.

(14) Assignment

Series of questions about the lesson already taken are to be written under assignment. Related problems, exercises, drawing of sketches including various types of questions like objective and subjective types can be given as separate assignment sheet.

(15) Next Lesson

Title of the next lesson to be taken has to be mentioned under this heading. A brief insight into the next lesson must be given to help the learners to think ahead of the subject and make them to understand better.

ADVANTAGES OF PREPARING A LESSON PLAN

A Lesson Plan which you prepare cherishes many benefits to you as well as to the learners. The advantages are:

To the Instructor:

1. It forms as a record of teaching-learning activity
2. It assists you to place the information in sequence
3. Help you to get confidence, as you need not always depend on your memory!
4. Facilitate you to select and use teaching aids at appropriate time during presentation
5. It serves you to organize complete teaching-learning activity in a smooth way and manage the entire class activities within the stipulated time
6. It assures you that all the points are covered about the lesson taught in the class
7. Helps to maintain the learner's interest till the finishing of the class because they are understanding the subject correctly and also they are getting time for interaction
8. It also helps in imparting uniform instructions in different classes at different timings

To the Learner:

1. Learners are getting interest in thinking and learning more and more by attending a planned instruction by an instructor
2. Learners are getting confidence and satisfaction in the subject what instructor has presented by systematic and sequence order
3. Serves the purpose to meet the requirement of learners at different levels
4. Expected standard of knowledge is being acquired because instructor has taught the lesson in a planned manner

A FEW DRAWBACKS

1. Instructor becomes ineffective if the lesson plans are not revised to accommodate innovative techniques and new information
2. Lesson plan must be used as an instructional material to refer the systematically written objectives. It must be a supplement and support to an instructor. You should not completely depend on it.
3. Preparation of lesson plan for the entire syllabus is a time consuming work.

A format of a lesson plan is shown below. Read carefully the ***italicized*** text to understand the simple way of making a lesson plan.

LESSON PLAN FORMAT

Trade**:** *Specify your trade* Module/Unit**:** *Reference to syllabus*
Date: *Day when LP prepared* Time: *Required time for teaching*
Lesson No: *Ref to syllabus*

I. PREPARATION:

Title: *Lesson Heading*

(1) Objectives: (*After teaching of this lesson the learners will be able to*)

- *Instructional objectives of the lesson in logical sequence*
- *Write objectives starting with action verbs ('SMART' method may be followed)*
- *Presentation should not be too much, too less for a single sitting class considering this point, write at least 2 objectives and maximum up to 4 objectives*

(2) Teaching Aids: *Essential teaching aids, viz. chalk, chalk board, duster, charts, projector, transparency, model, pointer, etc*.

(3) Introduction:
  (a) Review: *Link previous knowledge to connect present lesson*
  (b) Motivation: *Create willingness to learn, tell the purpose of learning*

II. PRESENTATION:

Developments / Topics	Information Points	Hints
Development of preparation step Topics / terms with reference to the objectives	*Definition & important points with reference to the content / topic*	*Spot hints, symbols, circuits, charts, transparency, etc.*

Developments / Topics	Information Points	Hints
(Continued from pre page) *Topics / terms with reference to the objectives*	*(Continued from pre page)* *Definition & important points with reference to the content / topic*	*(Continued from pre page)* *Spot hints, symbols, circuits, charts, transparency, etc.*

III. APPLICATION:

- *Application of knowledge gained, effectiveness of teaching*
- *Ability to use the learnt material in new & concrete situations. Learning outcome requires higher level of understanding*
- *Check how well the learner uses facts, principles, rules, and theories in solving problems*
- *Ask developing questions, probing questions*
- *Interact with trainees (ask simple & direct questions)*

Summary:

Recapitulate the lesson with reference to the objectives

IV. TEST:

Assignment:

- *To be given to the trainees consist of objective & subjective type of questions.*
- *A separate assignment sheet may be enclosed*

Reference: *Book name & author name for further reference*

M. Saravana

Next Lesson: *Designate the next lesson (extend teaching)* JTO/VI/TO

MODEL LESSON PLANS

Trade: Computer Module/Unit: I
Date: Time: 30 Minutes
Lesson No: 1

I. PREPARATION:

Title: Introduction to Computer

(1) Objectives: (After teaching of this lesson the learners will be able to)

1. Define a Computer and state its uses
2. Explain Software and Hardware
3. Identify the parts of a Computer
4. State the function of a Computer

(2) Teaching Aids: Chalkboard, Chalk, Charts, Computer system, Projector, etc.
(3) Introduction:
(a) Review: Electronic Calculator, Typewriter
(b) Motivation: Computer plays very important role in our day to day life. Used in School, College, Bank, Post office, Hospital, Military, Home, etc.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1.Definition	Computer is an electronic device, accepts data, process it, and gives resultant output.	Spot hints with a Computer system or a model
Uses	As a data processor it calculates fast, stores lot of information, used for communication purposes worldwide. Other important uses like Bus, Rail, Air ticket reservation, Office, School, College Hospital, Military & Bank, etc.	Use projector / chart
2. Software	Set of logical instructions in the form of programs loaded in the system.	Ask the Learners to identify the parts
Hardware	External & Internal components, which makes as a system	

Developments / Topics	Information Points	Hints
3. Parts 4. Function	I/P devices (key board, mouse); O/P device (monitor, printer); internal devices (CPU, RAM, hard disc, etc.) i) Computer accepts input information & transfers it to memory unit ii) Information in memory is fetched under control unit & processed as resultant output iii) Processed output information reaches output unit iv) Control unit directs all activities inside the system Input → Process (CPU) → Output	 Computer Parts CPU: Memory unit, Control unit & AL unit

III. APPLICATION:

1. What is a Computer?
2. Tell few advantages of a Computer
3. What is Hardware? Give some examples

Summary:

Recapitulate the lesson. (Definition- Uses- Software- Hardware - Function)

IV. TEST:

Assignment:

1. Draw a Computer system & Name the parts
2. Describe the function of a Computer
3. List the uses of Computer in various fields

Reference: NIMI - COPA Trade Theory.
Next Lesson: Programming

JTO/VI /TO

LESSON PLAN

Trade: WS Science Module/Unit: II
Date: Time: 30 Minutes
Lesson No: 2

I. PREPARATION:

Title: Energy

(1) Objectives: (After teaching of this lesson the learners will be able to)

1. Define Energy
2. Describe the forms of Energy
3. State the law of conservation of Energy
4. List the types and uses of Energy

(2) Teaching Aids: Chalkboard, Chalk, Chart, model, and other teaching aids

(3) Introduction:

(a) Review: Power

(b) Motivation: Energy is required to do any work.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1.Definition	Energy is 'the ability to do the work'. It may also be defined as 'the capacity of a physical system to do work'.	Use projector (or) Chart showing the sources and forms of Energy
2. Forms of Energy	Electrical, mechanical, thermal, chemical, atomic energy, etc.	Scientific forms of energy: Kinetic energy- working energy Potential energy- stored energy.
3. Law of conservation of energy	Energy of one form can be transferred to another form, but cannot be created or destroyed. If one form of energy disappears, it reappears in another form. This principle is known as law of conservation of energy.	Energy sources - Sun, wind, water, coal, wood, etc.

Developments / Topics	Information Points	Hints
4. Uses of energy	Energy of any form may be transferred to mechanical energy to do a mechanical work. Ex- In heat engines, heat energy is converted into mechanical energy in moving pistons. Mechanical work is done in driving vehicles, pumps, etc.	Unit of Energy is *Joules* or *ergs*
5.Classification of energy: 1) Potential Energy 2) Kinetic Energy	Electrical energy supplied to a lathe is transformed to mechanical energy in rotating the spindle and mechanical work is done in turning a job. PE- a body possesses because of its position (Ex-water in an overhead tank, Compressed gas in a cylinder, wound up spring of a watch) KE- a body possesses because of its motion (Ex- moving train, flowing water, blowing wind)	PE = mgh joules m – mass of body in kg g – gravity 9.8 m/sec^2 h – height in metre KE = 1/2 mv^2 joules m-mass in kg, v-velocity in m/s

III. APPLICATION:

1. What is Energy?
2. Tell the law of conservation of Energy.
3. What are the two scientific forms of Energy?

Summary:

Recapitulate the lesson with reference to the objectives

IV. TEST:

Assignment:

1. Prepare a chart which shows various sources of Energy.
2. How energy of one form is converted into other forms of energy?
3. Define Potential Energy and Kinetic Energy with few examples.

Reference: Workshop Calculation and Science by Kapil Dev.

Next Lesson: Simple Machines

JTO/VI/TO

LESSON PLAN

Trade: Fitter
Date:
Lesson No: 3

Module/Unit: I
Time: 30 minutes

I. PREPARATION:

Title: Drill bit

(1) Objectives: (After teaching of this lesson the learners will be able to)

1. Define a drill bit.
2. Identify the parts of a drill bit.
3. Name the different types of drill bits & their uses.
4. State the safety precautions to be taken while using drill bit.

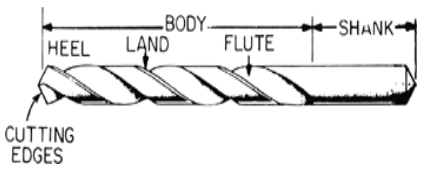
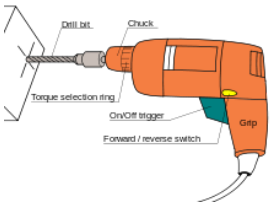
(2) Teaching Aids: Chalk board, chalks, duster, drill bits, charts, projector, screen, etc.

(3) Introduction:

(a) Review: Cutting tools. [Hack saw blade, file, chisel, etc.]

(b) Motivation: Drilling is a process to make round holes in metallic or non-metallic materials.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Definition	A small tool which fits in the chuck of a brace or drill, and by which it is rotated thereby cutting or boring a hole.	Use of chart Hand drilling machine
2) Parts of drill bit		

Developments / Topics	Information Points	Hints
3) Types of drill bits	Commonly used drill bits are: 1. Flat drill - flat section at cutting edge 2. Twist drill - spirals along the length remove the debris from the hole. 3. Centre drill - used making center of a hole or a conical hole for a lathe center 4. Oil tube drill - used to drill deep holes	Diagram 
4) Types of shank	1. Straight shank – small size drills 2. Taper shank – large size drills	
5) Safety precautions	1. Use proper coolant 2. Set proper cutting speed 3. Use correct size sharpened drills 4. Carefully remove the burrs	

III. APPLICATION:

1. Define drill bit
2. Identify the parts of a drill bit
3. Tell few safety measures to be followed while handling drill bits

Summary:

Summarize the lesson with reference to objectives

IV. TEST:

Assignment: Add assignment sheet separately

Reference: Workshop Technology by Hajra Choudhary

Next Lesson: Tapping

JTO/VI/ TO

LESSON PLAN

Trade: Computer
Date:
Lesson No: 4

Module/Unit: I
Time: 30 minutes

I. PREPARATION:

Title: Computer Networks

(1) Objectives: (After teaching of this lesson the learners will be able to)

1. Define a Computer Network.
2. Explain Network Protocol.
3. State the different types of network.
4. Describe Network Topology.

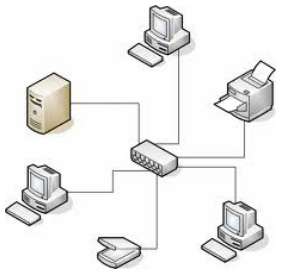
(2) Teaching Aids: Essential teaching aids, computer multimedia, projector, screen, etc.

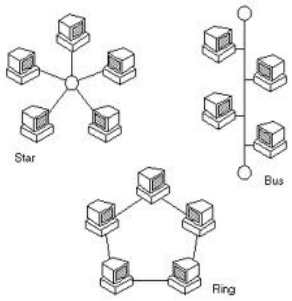
(3) Introduction:

(a) Review: Programming

(b) Motivation: Network link computers from different places

II. PRESENTATION:

Developments / Topic	Information Points	Hints
1) Computer Network	Collection of hardware components and computers interconnected by communication channels that allow sharing of resources and information.	Use chart, projector Network: 
2) Protocol	Communication protocols define the rules and data formats for exchanging information in a computer network, and provide the basis for network programming. (ex. Ethernet)	

Developments / Topics	Information Points	Hints
3) Types of Networks	1. Local Area Network (LAN) 2. Wide Area Network (WAN) 3. Metropolitan Area Network (MAN)	Diagram Star Bus  Ring
4) Network Topology	**Network topology** is the layout pattern of interconnections of the various elements (links, nodes, etc.) of a computer. Some types of topology are Star, Bus, Ring, Mesh	
5) Advantages	People can communicate efficiently and easily via email, instant messaging, telephone, video conferencing, printer sharing, etc.	

III. APPLICATION:

1. What is a computer network?
2. Tell few advantages of a computer network
3. What is network topology?

Summary:

Summarize the lesson (Definition - Protocol-Types of Network -Topology)

IV. TEST:

Assignment: Add assignment sheet separately

Reference: 'Computer Networks' by Andrew S.Tanenbaum

Next Lesson*:* Internet

JTO/VI/TO

LESSON PLAN

Trade: Fashion Technology Module/Unit: I
Date: Time: 30 Minutes
Lesson No: 5

I. PREPARATION:

Title: Colour Harmony

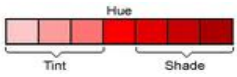
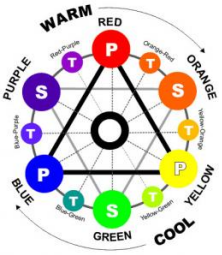
(1) Objectives: (After teaching of this lesson the learners will be able to)

1. Define Colour Harmony
2. List the types of colours
3. Explain the terms: tint, shade and value of colour
4. Describe the colour wheel

(2) Teaching Aids: Whiteboard, Marker pens, Charts, Computer system, Projector, etc.
(3) Introduction:
(a) Review: Patterns, Fabric designs
(b) Motivation: Colour stimulate the senses. Senses are the gate way of knowledge.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1. Colour Harmony 2. Types of Colour (a) Primary Colours (PC) (b) Secondary Colours (SC) (c) Intermediate / Tertiary Colours (TC)	Colour is one of the most complex factors in the art of designing. Harmony is the mixing of colours. Combining both we get colour harmony PC - Cannot be created by combining any other colours. SC - Are formed by mixing of primary colours. TC - are by formed by mixing of secondary colours.	Spot hints with Colour wheel chart PC : *Red, Blue and Yellow* SC: *Violet, Green and Orange* TC: *Yellow- Green, Green-Blue, Violet-Blue, Red-Orange, Violet-Red, Orange-Yellow*

Developments / Topics	Information Points	Hints
3. Tint and Shade 4. Value 5.Prang colour system	These terms describe how a colour varies from its original tone. If white is added, the lighter version of the colour is called a **tint** of the colour. If black is added the darker version of the colour is called a **shade** of the colour. The value is a measurement of the brightness of a colour. The degree of lightness or darkness. A system where Primary, Secondary and Tertiary colours are arranged.	Tint Shade  Prang colour system is **Colour wheel** 

III. APPLICATION:

1. What is Colour Harmony?
2. What are the types of Colour?
3. What is the value of Colour?

Summary:

Recapitulate the lesson. (Colour Harmony – Types – Properties of Colour)

IV. TEST:

Assignment:

1. Prepare a Colour wheel chart
2. Using colours show the difference between tint and shade

Reference: NIMI: Trade Theory - Dress Making Basic

Next Lesson: Types of Garments

JTO/VI/TO

LESSON PLAN

Trade: Dress Making
Date:
Lesson No: 6

Module/Unit: I
Time: 30 Minutes

I. PREPARATION:

Title: Maintenance of Sewing Machine

(1) Objectives: (After teaching of this lesson the learners will be able to)

1. State the importance of maintenance of a sewing machine
2. Explain the preventive maintenance procedure
3. Describe important corrective maintenance practices

(2) Teaching Aids: Whiteboard, Marker pens, Charts, Projector, etc.

(3) Introduction:

(a) Review: Parts of a sewing machine

(b) Motivation: It is necessary to have knowledge about preventive and corrective maintenance. If fault happens to any of the accessories, an operator can rectify it.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1. Importance of maintenance 2. Preventive maintenance 1) Cleaning 2) Oiling	Regular cleaning, oiling and care of a sewing machine ensure satisfactory sewing and a long life for the machine. Machine should be used regularly. When not in use keep the machine covered to prevent from dust. Clean lint, dust, thread bits with the help of small dry brush. It is necessary to oil the machine periodically. Oil it twice in a week if it is used every day. Put special sewing machine oil in all oil holes, joints and other required places. After thoroughly oiled, wipe away excess oil and run it slowly on a waste piece of material.	Clean with brush  Oiling 

Developments / Topics	Information Points	Hints
3. Corrective maintenance: Some of the important problems and remedies under the corrective maintenance are:	1)If race and shuttle not properly fixed, needle will break. Therefore fix the race and shuttle properly so that the needle does not hit the plate below. 2)If needle and thread are not according to the thickness of the cloth, they may break. So choose the number of needle and good quality thread according to the thickness of the cloth. 3)If tension disc is loose, the thread will also be loosened, and there will be looping stitch occurs. Therefore tighten the screw of the tension disc properly. 4) If bobbin is not filled properly loop stitch may occur. So fill the bobbin properly. 5)Belt of the machine being hard makes the machine heavy. If it is so replace the belt. 6) For proper stitch, the thread used in the needle must be used in the bobbin also.	 • If hard cloths like jeans are stitched without shrinking, the thread breaks. Shrink materials before stitching. • Correct sitting posture while stitching is important for you as well as your work.

III. APPLICATION:

1. Why oiling of machine is necessary?
2. What is the cause of needle breaking?
3. How will you clean your sewing machine?

Summary:

Recapitulate the lesson.

IV. TEST:

Assignment:

1. What are the two types of maintenance? Explain.
2. Write some defects and its causes occur in sewing machine. Explain with remedies.

Reference: NIMI: Trade Theory - Dress Making Basic

Next Lesson: Types of Garments

JTO/VI/TO

EXERCISE: (*By following the hints, prepare a Lesson Plan for a topic of your trade)*

LESSON PLAN

Trade: Module/Unit:
Date: Time:
Lesson No:

I. PREPARATION:

Title : _____

(1) Objectives: (After teaching of this lesson the learners will be able to)

1.
2.
3.
4.

(2) Teaching Aids:

(3) Introduction
   (a) Review:
   (b) Motivation:

II. PRESENTATION:

Developments / Topics	Information Points	Hints

Developments / Topics	Information Points	Hints

III. APPLICATION:

Summary:

IV. TEST:

Assignment:

Reference:

Next Lesson:

JTO/VI /TO

DEMONSTRATION PLAN:

Demonstration Plan is a detailed description of a practical lesson or a skill prepared by an instructor for a specific duration of time. A demo plan format is illustrated below.

DEMONSTRATION PLAN FORMAT

Trade: Specify trade — Module/Unit**:** Ref syllabus
Date: Day when demo plan prepared — Time: required time for demo
Demo No: Ref to syllabus

I. PREPARATION:

Skill: *Skill to be performed*

(1) Objectives: (After demonstrating the skill the trainees will be able to)
- *State the Behavioural objectives of the skill in logical sequence*
- *Objectives should not be written as 1)'What is ohm's law?', 2)' The verification of ohm's law, etc.'*
- *Write objectives starting with action verbs ('SMART' approach may be followed)*

(2) Tools & Other requirements: *Necessary tools, equipments, raw materials, consumables required for the demonstration.*

(3) Introduction:
- (a) Review: *link previous knowledge to connect the present skill*
- (b) Motivation: *Create willingness to learn, Tell the purpose of learning*

II. PRESENTATION:

Procedure	Information Points / Safety Precautions	Hints
Write main points with reference to the objectives.	*Step by step procedure of the practical work & Safety precautions to be followed*	*symbols spot hints models & charts*

Procedure	Information Points / Safety Precautions	Hints
(Continued from pre page) *Write main points with reference to the objectives*	*(Continued from pre page)* *Step by step procedure of the practical work* *&* *Safety precautions to be followed*	*(Continued from pre page)* *symbols* *spot hints* *models* *& charts*

III. APPLICATION:

- *Ability to use learnt material in new & concrete situations*
- *Learning outcome requires higher level of understanding*
- *Check the learner uses facts, principles, rules, and theories in solving problems*
- *Application of skill gained, imitation of the demonstration*
- *Developing questions, probing questions may be asked while demonstrating the skill*
- *Interact with trainees*

Summary:

Summarizing the skill with reference to the objectives

IV. TEST:

Assignment:

To be given to the trainees related to the skill

Reference: *Book name & author name for reference*

Next Skill: *Topic of the next practical (extend teaching)*

M. Saravana

JTO/VI/TO

EXERCISE: *By following the demo plan format hints, prepare a Demo Plan related to your trade.*

DEMONSTRATION PLAN

Trade: Module/Unit:
Date: Time:
Demo No:

I. PREPARATION:

Skill: _____

(1) Objectives: (After demonstrating the skill the trainees will be able to)

1.
2.
3.
4.

(2) Tools & Other requirements:

(3) Introduction:

(a) Review:

(b) Motivation:

II. PRESENTATION:

Procedure	Information Points / Safety Precautions	Hints

Procedure	Information Points / Safety Precautions	Hints

III. APPLICATION:

Summary:

IV. TEST:

Assignment:

Reference:

Next Skill:

MODEL DEMO PLANS:

DEMONSTRATION PLAN

Trade: Electronic Mechanic — Module/Unit: 02
Date: — Time: 1 Hour
Demo No: 1

I. PREPARATION:

Skill: Construct a Half Wave Rectifier and observe the output waveform.

(1) Objectives: (After demonstrating the skill the trainees will be able to)
1. Check the components and assemble the circuit .
2. Measure the input AC and output DC voltage.
3. Trace the input and output waveform.
4. Measure the peak voltage and calculate the RMS value.

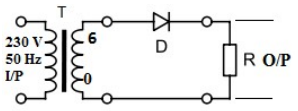
(2) Tools & Other requirements: CRO, diode, transformer 6v, soldering iron, voltmeter, and multimeter, etc.

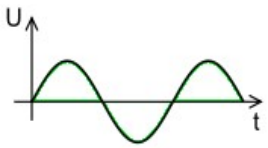
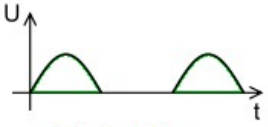
(3) Introduction:

(a) Review: Characteristics of a diode.

(b) Motivation: Rectifier circuit exists in all electronic equipments and chargers.

II. PRESENTATION:

Procedure	Information Points / Safety Precautions	Hints
1) Assembling	1. Test the components 2. Construct the circuit as per diagram. 3. Use proper solder, soldering lead and flux. 4. Make sure that meters are connected in proper polarity and of range.	Circuit diagram 

Procedure	Information Points / Safety Precautions	Hints
2) Measurements 3) Calculation	1. Measure the AC voltage across secondary of transformer. 2. Measure the DC voltage across load using multimeter. 3. Measure No Load voltage across diode, cathode. 4. Trace the i/p, o/p waveform using CRO Calculate the percentage of regulation. The output DC voltage of an ideal half wave rectifier is: $V_{rms} = \frac{V_{peak}}{2}$ $V_{dc} = \frac{V_{peak}}{\pi}$ Percentage of regulation = V_{NL}-V_{FL}/V_{NL}*100	 Input wave form  Output waveform

III. APPLICATION:

1. Assemble the circuit according to the diagram.
2. Test the load voltage.
3. Test the no load voltage.

Summary: Summarize the skill

IV. TEST:

Assignment:

1. Assemble & verify the voltage values.
2. Calculate voltage regulation for different load values.

Reference: Basic Electronics by V.K.Mehta

Next Skill: Full Wave Rectifier. JTO/VI /TO

DEMONSTRATION PLAN

Trade: Fitter **Module/Unit: 02**
Date: Time: 1 Hr
Demo No: 2

I. PREPARATION:

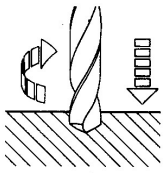
Skill: Drilling

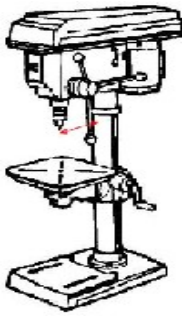
(1) Objectives: (After demonstrating the skill the trainees will be able to)
1. Select the drill for drilling.
2. Fix the job and drill bit in drilling machine.
3. Perform drilling operation.
4. Follow safety precaution.

(2) Tools & Other requirements: Vernier, height gauge, scriber, hammer, punch, vice, drilling machine, drill chuck, drill bit, cotton waste, etc.

(3) Introduction:
(a) Review: Chipping.
(b) Motivation: To make a hole on work piece in correct size.

II. PRESENTATION:

Procedure	Information Points / Safety Precautions	Hints
1. Drilling	It is a process of making a hole on work pieces.	Diagram
2. Procedure	1) Check the raw material in correct size. 2) File the surface to smooth. 3) Mark the job as per the required dimension. 4) Hold the job in a vice with parallel & support the wooden block. 5) Check the drill bit point 6) Fix the drill bit in drill chuck.	

Procedure	Information Points / Safety Precautions	Hints
3) Safety precautions	7) Fix the drill chuck in drilling machine. 8) Set the drill bit in a proper position. 9) Make a drill slowly to required depth 10) Remove the chips & clean the machine 1) While drilling, look at the drill bit/ drilling point carefully. 2) Do not clean the chips with bear hands. Use brush. 3) Fix the drill bit in a drill chuck correctly.	

III. APPLICATION:

1. What is drilling?
2. How to fix a drill bit?
3. Tell few safety precautions to be followed.

Summary: Summarize the skill

IV. TEST:

Assignment: Drill a given job as per the dimension.

Reference: NIMI book, 1st year Fitter Trade Theory

Next Skill: Chipping.

JTO/VI /TO

DEMONSTRATION PLAN

Trade: Turner Module/Unit: 02
Date: Time: 1 Hr
Demo No: 3

I. PREPARATION:

Skill: Chipping

(1) Objectives: (After demonstrating the skill the trainees will be able to)

1. Select a chisel for chipping
2. Perform chipping operation.
3. Follow safety precaution.

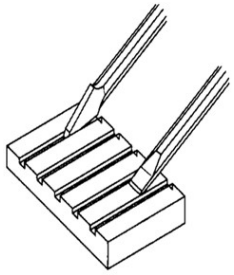
(2) Tools & Other requirements: Hacksaw frame, blade, steel rule, try square, file, vernier height gauge, Scriber, punch, vice, wooden block, chisel, hammer, etc.

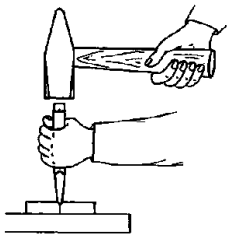
(3) Introduction:

(a) Review: Hack saw practice.

(b) Motivation: To remove excess metal chipping operation is done.

II. PRESENTATION:

Procedure	Information Points / Safety Precautions	Hints
1. Chipping	Chipping is an operation performed for removing the excess metal with the help of chisel and hammer.	Diagram Chipping chisel
2. Procedure	1) Check the raw material in size. 2) File the surfaces smooth. 3) Mark the job as per the chipping dimension 4) Hold job in a bench-vice with the wooden block for supporting 5) Hold the cross cut chisel properly. 6) Hold the correct hammer for chipping.	

Procedure	Information Points / Safety Precautions	Hints
 Mushroom head 3) Safety precaution	7) Chip the surface on the marked area. 8) Chipped surface will be rough it should be finished by filing. 9) Clean the work area 1) While chipping the metal job, install chip-guard against chips flying off. 2) The chisel head must be free from mushroom formation.	 Use sponge rubber to protect your hand

III. APPLICATION:

1. What do you mean by chipping?
2. What are the tools used for chipping?
3. What is mushroom head?

Summary: Summarize the skill

IV. TEST:

Assignment**:** Chip the given job as per the dimensions

Reference: NIMI book - Fitter I Year Trade Practical

Next Skill: Knurling

JTO/VI/TO

DEMONSTRATION PLAN

Trade: Beauty Culture
Date:
Demo No: 4

Module/Unit: 03
Time: 45 minutes

I. PREPARATION:

Skill: YOGA (Surya Namaskar)

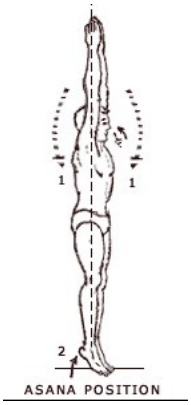
(1) Objectives: (After demonstrating the skill the trainees will be able to)

1. Tell the benefits of performing Surya Namaskar
2. State the precautions to be followed while doing yogasana
3. Perform surya namaskar

(2) Tools & Other requirements: Charts, yoga kit, yoga mat, etc.
(3) Introduction:
(a) Review: History of Yoga
(b) Motivation: To keep us internally and externally fit, suryanamaskar is important.

II. PRESENTATION:

Procedure	Information Points / Safety Precautions	Hints
1.Benefits	Surya Namaskara - Sun Salutation. Gives physical and mental benefits. Good for the heart, stimulates the cardiovascular, digestive, and nervous systems.	Surya namaskar Chart
2. Steps to be followed	1. Stand on your yoga mat and start with the Yoga Mountain Pose. Bring your palms together in prayer position. Exhale. 2. Inhale, raise your arms overhead, keeping your palms together. 3. Exhale and then bend forward until your hands touch your feet. 4. Inhale, step the right leg back, arch back and lift your chin. 5. Exhale, step the left leg back into plank (flat) position. Keep your spine and legs in a straight line and support your weight on hands and feet. 6. Retaining the breath, lower your knees, your chest and then your forehead, keeping your hips up and toes curled under.	

Procedure	Information Points / Safety Precautions	Hints
	7. Inhaling, stretch forward and bend back. Keep your arms straight. 8. Exhaling, curl your toes under, press down into your heels, and lift your hips. 9. Inhale, bring your right leg forward, with the top of the foot stretched out flat on the floor, and lift your chin 10. Exhale and then bend forward until your hands touch your feet. 11. Inhaling, stretch your arms forward and over your head. Slowly bend backward from the waist. 12. Exhaling, gently come back to Mountain pose (Tadasana)	Tadasana pose 
3) Precautions	High blood pressure, Low BP, Heart patients, and sick persons must avoid doing yoga.	

III. APPLICATION:

1. Show the tadasana pose
2. What are the benefits of Surya namaskar?

Summary: Summarize the skill

IV. TEST:

Assignment: Perform Suryanamaskar

Reference: ‘ The Art of Yoga’ by B.K.S.Iyengar

Next Skill: Facial

JTO/VI/TO

DEMONSTRATION PLAN

Trade: Fitter
Date:
Demo No: 5

Module/Unit: 02
Time: 1 Hr

I. PREPARATION:

Skill: Cutting of MS flat using hacksaw frame

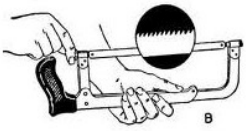
(1) Objectives: (After demonstrating the skill the trainees will be able to)

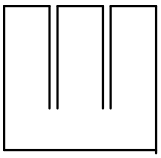
1. Select suitable tools and hacksaw blade
2. Fix a blade in the hacksaw frame
3. Hold the work piece on the bench vice
4. Cut the work piece with the hacksaw

(2) Tools & Other requirements: MS Flat 50x6-105mm, 18TPI blade, Steel rule, bench vice, files, try square, scriber, punch, hammer, adjustable hacksaw frame, etc.

(3) Introduction:
   (a) Review: Filing practice
   (b) Motivation: Cutting with the hacksaw wastage of metal will be less. Cut edges will be cleaner than use of other cutting tools.

II. PRESENTATION:

Procedure	Information Points / Safety Precautions	Hints
1) Selection of tool	1. Steel rule to measure 2. Bench vice to hold WP 3. File to file the WP 4. Try square to check level 5. Scriber to draw lines 6. Punch for marking 7. Hammer to strike punch 8. Hacksaw frame to cut	
2) Fixing of hacksaw blade	1. Coarse grade blade is used for MS flat cutting, which contains 18TPI. 2. The teeth of the Hacksaw blade should point the direction of the cut. 3. Apply pressure only during the forward stroke.	

Procedure	Information Points / Safety Precautions	Hints
3) Cutting Operation	1. Check the work piece size by using steel rule 2. Fix the work piece securely in the bench vice 3. File the reference plan and check flatness and right angle using try square 4. Apply marking media (chalk) and allow to dry 5. Mark lines as per the drawing by using scriber 6. Punch on the marked lines 7. Cut along the lines using the hacksaw 8. Remove burrs from the work piece	 Work piece
4) Safety precautions	1. Do not cut too fast 2. Use full length of the blade 3. While starting the cut, make a small notch 4. While finishing slowdown to avoid the breakage of the blade, injury to yourself and others	

III. APPLICATION:

1) Why making of notch on the work piece is important?
2) To cut the MS flat which blade is used?

Summary: Summarize the skill

IV. TEST:

Assignment: Drill a given job as per the dimension.

Reference: Workshop Technology by Hajra Choudhary

Next Skill: Chipping.

JTO/VI/TO

DEMONSTRATION PLAN

Trade: Electrician
Date:
Demo No: 6

Module/Unit: 02
Time: 1 Hr

I. PREPARATION:

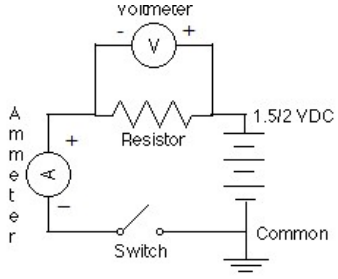
Skill: Verification of Ohm's law

1) Objectives: (After demonstrating the skill the trainees will be able to)

   1. Check the components and equipments
   2. Draw the ohm's law circuit diagram
   3. Construct the circuit
   4. Verify ohm's law

2) Tools & Other requirements: Resistor, PCB (dot matrix), soldering iron, stand, lead, multi stand wire, milli-ammeter, voltmeter, etc
3) Introduction:
   (a) Review: Resistance
   (b) Motivation: Flow of Voltage, current, resistance in a circuit.

II. PRESENTATION:

Procedure	Information Points / Safety Precautions	Hints
1. Check the components 2. Circuit diagram	Check the physical and electrical working conditions of the components and equipments. 	V=I R V = Voltage I = Current R = Resistance

<table>
<tr><th>Procedure</th><th>Information Points / Safety Precautions</th><th>Hints</th></tr>
<tr><td>3) Construction of circuit

4) Safety precautions</td><td>1) Construct the circuit as per the circuit diagram.
2) Apply D.C voltage to the circuit
3) Observe and record the current in milli amps
4) Observe and record the voltage in volts
5) Calculate the resistance by using the formula R = V/I

1) While connecting the components be sure that the power supply is switched off.
2) Ammeter terminal connections must be connected properly</td><td>Record the readings in tabular column.
<table><tr><td>Applied voltage</td><td></td></tr><tr><td>Voltage across resistor (V)</td><td></td></tr><tr><td>Current I (mA)</td><td></td></tr><tr><td>R = V/I</td><td></td></tr></table></td></tr>
</table>

III. APPLICATION:

Ask the trainees to observe the readings

Summary: Summarize the skill

IV. TEST:

Assignment: Find the value of R; if I = 10 mAmps; and V = 20 V.

Reference: NIMI, EM 1st year Trade Practical

Next Skill: Resistors in series.

JTO/VI/TO

POINTS TO REMEMBER

While preparing a Lesson Plan you must remember following points to make your plan complete and comprehensive.

1. The title
2. Time required to present the lesson
3. Statement of objectives without ambiguity
4. Teaching aids, and other required tools & equipments
5. Introduction
6. Review by linking the previous knowledge to present topic
7. Motivate, create willingness to learn by telling the purpose of learning
8. Presentation
    a. Topics, developments with reference to objectives
    b. Information points
    c. Hints
    d. Developing questions
    e. Display of teaching aids in appropriate time
9. Learner's activities such as active participation, interaction, question and answer
10. Summary. It is an opportunity for you to wrap up the discussion
11. Test to know the effectiveness of teaching and the understanding level of the learners
12. Assignment- Include objective and subjective type of questions
13. Reference materials- Inform book name and author's name
14. Topic for next lesson
15. Feedback

CONCLUSION

A simple format of a Lesson Plan which is described in this chapter is a simple procedure applicable to any instructional situation. It is logical to proceed by first gaining the attention and interest of the learner in a teaching process. When this is accomplished, then presenting the information to the learner, providing opportunity to practice the information learnt, and finally determining what the learner has actually learnt, is the natural sequence of teaching. Once a Lesson Plan is developed, it may be used repeatedly with slight changes to accommodate individual or group differences, and technological changes. Periodically the Lesson Plan should be renewed, so that the obsolete and old items can be removed and new developments and changes can be accommodated. Lesson Plan can be modified according to the level of the learners in the class, educational or training institute's requirements and also personal interests of an instructor.

2. WRITING OBJECTIVES FOR A LESSON PLAN

INTRODUCTION

While preparing a Lesson Plan, Instructors often tend to write objectives as - **'What is Ohm's Law?'; 'How many types of topologies are there?'; 'Introduction to Computer', etc.,** Which are not correct! The objectives must be written in behavioural terms starting with action verb. This chapter will guide the Instructors to state the objectives precisely. In the Preparation Step of a lesson plan, objectives plays very important role as the duration of quality time of teaching depends on clearly stated objectives. If the objectives are not clear, the intended outcome cannot be achieved. A precisely stated objective often determines the nature of training method, media and process of testing. Learning activities are classified under acquisition of knowledge, development of skill, and modification of attitude and habits. For effective implementation of the training programme, and in the context of instructional design, objectives play a very important role.

This chapter aims to describe the difference between ambiguous statements and performance statements, illustrates the systematic methods of writing instructional objectives which are used in lesson plan and demo plan. The importance of using action verbs for writing the objectives is also emphasized. The taxonomy of educational objectives classification which is useful for writing instructional objectives in behavioural terms is briefed with examples. The terms goal, aim, and objectives which are interchangeable and used as synonyms to each other, are distinguished with simple examples to help you to state the objectives clearly without any ambiguity!

AMBIGUITY WITH GOAL, AIM, AND OBJECTIVES!

The three Musketeers……!

Every training course and a teaching learning process will have 'Goal', 'Aim', and 'Objectives'. Are the ***three words*** same or interchangeable? No! In the training parlance these three terms have separate meanings. It is necessary to understand the usage of the terms- 'goal', 'aim', and 'objective' without any ambiguity. The term 'goal' is much wider than the terms 'aim' and 'objective', although they are often found synonymously used. It may be seen in the field of education that, hierarchical distinction is maintained in the usage of these terms. An ambiguous statement can be interpreted with more than one meaning or may confuse without any meaning. Unless you have a clear, unambiguous objective both you and your learner will reach a place where do not know! (Robert Mager.1975). If the objectives are not clear, as a trainer you

have to waste your time, your learners' time, and probably a considerable amount of your employer's money.

The variance of word meanings in natural language has always posed problems for those who attempt to construct an unambiguous and consistent statement. It is often the case that a written statement could be interpreted in several ways by different individuals, thus rendering the statement subjective rather than objective. 'Goal' stands for 'broad and ultimate category', 'aim' refers to 'a more specific set of purposes'; 'Objectives' however, are 'the most precisely defined ends in view'. The specification of objectives is essential for the implementation of any programme or project. For all training activities it is essential that there is a clearly defined purpose. Institution, learners, and trainers should understand the intention of the training and the outcomes to be achieved.

Following illustration will present a clear distinction between Goal, Aim, and Objective.

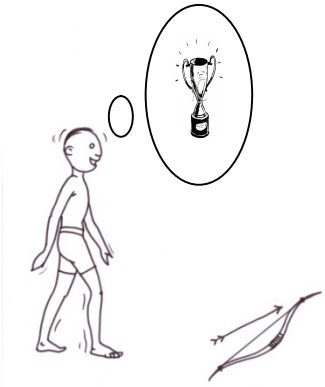


Fig. 1
(Goal-broad ambition)

Fig.2
(Aim- set the target)

Fig.3
(Objective- achieve the target)

GOAL

Goals are broad, generalized statements about what is to be learned. Educational goals are general aim or purpose of education that is stated as a broad, long-range outcome to work toward. Goals are used primarily in policy making and general programme planning. The terms 'goals' and 'objectives' are sometimes used interchangeably. This is wrong. They are different. Goals are broad and sometimes difficult to directly measure. Goals help us to focus on the big and important picture.

Eg.1: The right of children to free and compulsory education is the main goal of Right to Education act.

Eg.2: In instructor training, the trainees develop attitude to become a competent instructors.

AIM

Aim is the general declaration of intent that gives direction to a programme. In other words, *aim* may be defined as an answer to the question of the type 'what for a programme of personality development undertaken?' and *objective* as an answer to the question of the type 'what will be achieved if the programme is completed?'. "In educational discussions and in language teaching, a hierarchical distinction is sometimes made between 'goals' as a very broad and ultimate category, 'aims' as a more specific set of purposes, and 'objectives' as the most precisely defined ends in view which can often be described in terms of behavioural outcomes" according to Stern.H.H (1983).

Eg.1: To train clerical staff to use the Computer.
Eg.2: To develop proficiency in the basic skills of reading, writing, and arithmetic.

The purpose of the aim is to draw attention to the training being provided, and communicating the intention to a target audience that will include learners, management, and clients.

OBJECTIVE

Objective is a point which one aims at reaching after a certain amount of learning experience. Clearly defined objectives would not only help the teachers and learners to understand what exactly they are supposed to do, but also provide the means for evaluating their own achievements. The statement of objectives is therefore expected to be specific, observable and presented in performance terms. For example, achieving national integration is one of the goals of education. But how this goal is going to be achieved is required to be spell out through objectives!

Goal: To become a professional tailor
Aim: To teach / to learn stitching of garment
Objectives: 1. Take proper measurement.
2. Draft paper pattern
3. Cut the material
4. Stitch the garment

AMBIGUOUS STATEMENTS OF OBJECTIVES

In training, one of the important tasks of an instructor is to conceive clearly the learners' expected terminal behaviour. What one conceives clearly can also be expressed clearly. The success of the teaching process depends on stating the specific learning outcome – the objectives! While writing the objective statement, you should remember that it should not make any ambiguity. Words representing either vague or ambiguous concepts that cannot be

precisely measured must be avoided. Ambiguous terms: knows, understands, appreciates, grasps, enjoys, and believes, etc. must be avoided.

For example, following statements can be interpreted in more than one way. This type of statements must be avoided.

- Learners will **understand** objectives. (What is 'understand'? Will learners be expected to say what objectives are, or just name the components, or must they be able to write objectives?)
- The trainee will have **knowledge about** photocopy machine. (What is 'knowledge about'? Do they just place the paper and take copies, or they are skillful to operate the machine including multi copy, size adjustment, and also maintenance?)
- The trainee will **appreciate** the benefit of yoga. (What is meant by 'appreciate'? Quite a number of people appreciate the benefit of yoga, but fail to do it!)
- The trainee **knows** stitching. (What are the limits of 'knowing'? do they know measuring, drafting, cutting, etc.?)

These examples are vague and could be interpreted by ten different learners in ten different ways. It is the responsibility of an instructor to state clearly what the trainee will be able to do on completion of training.

EXAMPLES OF PERFORMANCE STATEMENTS

As described in the following examples, objectives must be written in performance related terms with appropriate action verbs.

1) The Assistant will be able to **list** the principles of noting and drafting.
2) The Section Officer will be able to **manage** the records of his office.
3) The architectural assistant will be able to **draw** a layout of the building.
4) The trainee will be able to **name** the parts of a computer system.
5) The mechanic will be able to **replace** the tyre of a two wheeler.
6) The electrician will be able to **connect** the wire.
7) The trainee will be able to **create** charts for available data using MS Excel.
8) The machine operator will be able to **drill** the job as required.
9) The Income Tax Inspectors will be able to **list** modes of tax recovery.
10) The trainee electrician will be able to **explain** the function of a transformer.
11) The fitter will be able to **weld** a job.
12) The Storekeepers will be able to **arrange** the items of his store in order.

Words in **bold** clearly indicate the actions required of the learner.

EXPERTS' VIEW ON OBJECTIVES

'An objective is a description of a performance you want learners to be able to exhibit before you consider them competent. An objective describes an *intended result of instruction*, rather than the process of instruction itself' **Robert Mager (1975)**.

'A fruitful way to state instructional objectives is in terms of the types of outcomes we expect from our teaching. The focus should be on the *learning outcomes* attained by the students. The objectives should direct attention to the student and to the types of behaviour he/she is expected to exhibit as a result of the learning experience. Our focus shifts from the teacher to the student and from the learning process to the learning outcomes' **Norman E.Gronlund (1978)**.

'A performance objective is a detailed description of what students *will be able to do when they complete a unit of instruction*. It is also referred to as a behavioural objective or an instructional objective' **Dick and Carey (1978).**

From the above extracts of the experts' views, it is obvious that all are considering objective as an **'intended learning outcome'**.

METHODS OF WRITING OBJECTIVES

An objective is a precise, clear statement of what the learners will be able to do at the end of a learning event. A few methods are followed to state the objective clearly.

1. **Mager's Method**
2. **SMART Method**
3. **ABCD Method**
4. **Gagné and Briggs Method**

MAGER'S METHOD

As per Robert Mager (1975), for stating objectives there are three elements to be included, or at least considered:

1) A statement of the **performance** to be achieved by the trainee. This enables the acquisition of knowledge and the development of skills to be focused only on what is essential.
2) A statement of the **conditions** under which it is being done. This enables the learning event and assessment to include conditions needed for effective transfer to job performance.
3) A statement of the minimum **standards** of performance a trainee must attain. This enables us to check accurately if the trainee has achieved the objective. Equally important, it tells the trainee what is expected to be achieved.

The first element 'Performance' is a very important element of all the objective statements; whereas the other two may be added subject to the need of specificity. This means that the objective statement **must** include the performance to be carried out by the learner. If necessary the conditions under which that performance must be carried out should also be included. Similarly the acceptable standards of performance a learner must attain, if it needs to be specified may also be added.

Examples:

1. Performance:
    a. The trainee will be able to type a business letter.
    b. The trainee will be able to list the advantages of internet.
2. Performance with Condition:
    a. The accountant will be able to calculate the revised pay using the fitment table.
    b. The DTP operator will be able to modify the design with the help of the latest user friendly software.
3. Performance with Conditions and Standards:
    a. The data entry operator will be able type 40 wpm without error.
    b. The police officer will be able to fire 5 rounds in 3 seconds from his service revolver on a 25 yard range.

THE 'SMART' METHOD

A simple mnemonic used to set objectives is called **SMART objectives.** *Peter Ferdinand Drucker* (1954) widely considered to be 'the Father of Modern Management' in US used this simple term in his seminal work: 'The Practice of Management' to set objectives.

SMART stands for Specific, Measurable, Achievable, Realistic and Time bound.

SMART often called as Key Performance Indicators (KPIs) in project management, employee performance management and personal development. Later, *George T. Doran* (1981) used in his work: 'There's a S.M.A.R.T. way to write management's goals and objectives. *Paul J. Meyer* (2003) also described the characteristics of S.M.A.R.T. goals in his book: *Attitude is Everything.*

1. **Specific** – Objectives should specify exactly what the learner will be able to achieve.
2. **Measurable** - Should be able to measure whether you are meeting the objectives or not.
3. **Achievable** - Are the objectives you set, achievable and attainable?
4. **Realistic** – Can you realistically achieve the objectives with the resources you have?
5. **Time bound** – When do you want to achieve the set objectives?

THE 'ABCD' METHOD

One of the easiest ways to write objective is to use the ABCD model! This was developed in the 1970s by the National Special Media Institutes, US. The

ABCD method of writing objectives is an excellent starting point for writing objectives (Heinich R, et al., 1996). Heinich suggested that well written objectives have four parts. They call these parts the ABCD's of instructional objectives. The **A** stands for Audience, the **B** represents Behaviour, the **C** stands for Condition, and the **D** for Degree of Accuracy. Each instructional objective is written in sentence format and should contain the A, B, C and D. Let's take a closer look at each of these.

As per the ABCD method, the objective need not be written in the order of ABCD, but it should contain all of these elements.

(1) Audience

Describes the intended learner or end user of the instruction.

E.g 1: The skilled **trainees** will be able to....

E.g.2: The **participants** of this workshop...

(2) Behaviour

This describes the learner's capability. It must be observable and measurable. The 'behaviour' can include demonstration of knowledge or skills in any of the domains of learning: cognitive, psychomotor, affective, or interpersonal

E.g.1: ..... will be able to **write** a report...

E.g.2: ...will be able to **describe** the steps...

(3) Condition

Under what circumstances or context will the learning occur?
Conditions describe the relevant factors associated with the desired performance.
Equipment or tools that may be utilized in completion of the behaviour.
Environmental conditions may also be included

E.g.1: ...after **observing the demonstration** .....

E.g.2.: ...run 100 meters in a **track / up a hill** ...

(4) Degree

States the standard for acceptable performance (time, accuracy, proportion, quality, etc) how well will the behaviour need to be performed?

E.g.1: **... without error**.

E.g.2: ...**within 60 seconds**.

This is often called the **ABCD's of objectives**, a nice mnemonic aid!

THE 'GAGNE AND BRIGGS' METHOD

The **Gagné** and **Briggs** (1979) format for writing instructional objectives consists of five components. They are:

1. **Situation**
2. **Learned Capability**
3. **Object**
4. **Action**
5. **Tools and Other Constraints**

The components of the Gagné and Briggs format match Mager's condition, performance, and criterion, only to add the object, content of the learning activity as well as the tools used. Gagné and Briggs were among the early developers of the concept of Instructional Systems.

Some examples of Gagné & Briggs objectives:

> Given a battery, light bulb, socket, and pieces of wire (situation), demonstrate (learned capability) the making of an electronic circuit (object) by connecting wires (action) to battery and socket (tools) and testing the lighting of the bulb (action).
>
> In response to a question (situation), the learner will state (learned capability) orally (action) three technological trends that will affect the future capabilities of the army (object). The answer is to be completed in three minutes (constraints/tools).

Though there are different methods of stating objectives exist, to write instructional objectives in behavioural terms, in Lesson Plan and Demo Plan, it is apt to use the '**SMART'** method.

THE TAXONOMY OF EDUCATIONAL OBJECTIVES

The taxonomy provides a classification of educational objectives that is similar to the classification scheme used for plants and animals. The area of education has seen the emergence of a number of taxonomies specifying the educational objectives. One of the most helpful guides in identifying and defining instructional objectives is the Taxonomy of Educational Objectives, developed by the committees under the direction of Bloom (1956) and Krathwohl (1964). The taxonomy of educational objectives consists of a set of general and specific categories that covers all possible learning outcomes that might be expected from instruction. The classification system was developed by psychologists, teachers, and test experts for use in curriculum development, teaching, and testing. The learning outcomes are best described in terms of changes in learners's behaviour. Therefore the classification is useful to teachers, who are attempting to state their instructional objectives in behavioural terms.

The classified three domains of educational activities are:

- **Cognitive**: mental ability (*Knowledge*)
- **Affective**: growth in feelings or emotional areas (*Attitude*)
- **Psychomotor**: motor or physical skills (*Skills*)

The **Cognitive** domain includes those objectives that emphasize intellectual outcomes, such as 'the recall or recognition of knowledge and the development of intellectual abilities'; The **Affective** domain includes those objectives that emphasize 'feeling, emotion, interest, attitudes, values, and the development of appreciations and adequate adjustment'; and The **Psychomotor** domain includes those objectives that emphasize 'physical skills, such as, writing, typing, stitching, swimming, etc.

A complete classification system was developed for the Cognitive and Affective domains by the Bloom and Krathwohl committees. Though the form of Psychomotor domain was not universally accepted by the academic scholars as a 'complete classification', Simpson (1972), Harrow (1972), Dave (1975) prepared the major components of Psychomotor domain for various instructional strategies.

Cognitive Domain:

The cognitive domain (Bloom, 1956) involves knowledge and the development of intellectual abilities. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of mental abilities. There are six major categories, which are listed in order, starting from the simplest behaviour to the most complex. The categories can be thought of as degrees of difficulties. That is, the first ones must normally be mastered before the next ones can take place. The categories of Cognitive domain are: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation.

Affective Domain:

The affective domain (Krathwohl, Bloom, Masia, 1973) includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories are listed from the simplest behaviour to the most complex: Receiving, Responding, Valuing, Organization, and Internalizing values

Psychomotor Domain:

The psychomotor domain (Simpson, 1972) includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. The seven major categories are listed from the simplest behaviour to the most complex: Perception, Set, Guided response, Mechanism, Complex response, Adaptation, and Origination.

The 'other two popular versions of psychomotor domain' components are:
Harrow's (1972): Reflex movements , Fundamental movements , Perception, Physical abilities , Skilled movements , No discursive communication
Dave's (1975): Imitation, Manipulation , Precision, Articulation, Naturalization

Anderson (2001) who was associated with Bloom and his committee, revised the cognitive domain components and made some changes. The changes are the names in the six categories from noun to verb forms, and slightly rearranging them as: Remembering, Understanding, Applying, Analysing, Evaluating, Creating. The 'revised taxonomy' is considered as a more active form of thinking.

The components of the three domains Cognitive, Affective, and Psychomotor will guide us to choose the educational activities related to Knowledge, Attitude, and Skill and write the instructional objectives appropriately. Some of the activities or actions related to the three domains are listed below:

Cognitive – Cite, define, describe, name, recite, recognize, modify, verify, etc.
Affective – Realize, behave, cooperate, accept, characterize, customize, organize, etc.
Psychomotor – Write, repair, type, run, jump, stitch, pull, push, remove, operate, etc.

Action Verbs are listed separately in the **Appendix A**. You can categorize and make use of it to write the objectives properly.

"It is my intention, apart from the alleviation of all kind of hardship, to promote the **Moral, Physical,** and **Intellectual development** of the people."

- Robert Bosch (1861-1942)

The above inspirational statement connects all the three domains!

Your Objective: Achieving the Target

THE BENEFITS OF WELL WRITTEN OBJECTIVES TO THE TRAINER AND TO THE LEARNER:

- Objectives specify, precisely, what the learner has to achieve.
- Objectives focus attention on the outcome of training, rather than the process.
- Objectives impose a professional discipline on the provision of training.
- Objectives act as a basis for communication between trainers, learners, and the management or institution.
- Through objectives we can analyse what a person should be able to do, in terms of performance.

Learners also will be benefitted when you use objectives properly.

- Effectiveness of training is improved if you give learners for what they are expected to learn.
- Objectives are written in learner terms, intended to help the learner.
- Objectives can include criteria for assessment; learners therefore know how their performance will be measured.
- Learners may be encouraged to develop their own objectives.

CONCLUSION

The basic definition of an objective is that it is a statement of what a learner must **do** to show that he or she has learned. This is a statement of the **performance** or **outcome** to be achieved. This chapter 'Writing Objectives for a Lesson Plan' emphasized the importance of stating instructional objectives as learning outcomes and of defining each objective in terms of observable learner behaviour. Various methods of writing objectives, the procedures for selecting and using behaviourally defined objectives have also been described and illustrated. Now you will be able to identify proper action verbs to state the instructional objectives for your lesson plan of each instructional unit that you are teaching. The **Appendix A** will help you to choose action verbs to write the instructional objectives related to your field. Sample objectives are listed in **Appendix B** related to various trades and behaviours which can be used as a reference.

3. EXERCISES

EXERCISE 1:

Mark the following terms whether the action verbs dealing with **Knowledge** or **Skill**?

1) Describe _____
2) List _____
3) Adjust _____
4) Operate _____

EXERCISE 2:

Read the following examples of objectives and write-down your observation whether you are **complying or not complying with** the following criteria:

- Is the objective expressed in learner terms?
- Is there a clear statement of performance?
- Is the performance observable?
- Can it be measured?

Write why you think each objective complies/does not comply with the above criteria, and any reservations you may have. Compare your answers with the answer keys.

1. The learner will be able to drive a car.

   ---

2. The learner will be able to calculate the amount of Sales Tax.

   ---

3. The learner will be able to switch-on a personal computer.

   ---

4. The learner will know how to respond to a 'full file' error terminal message.

   ---

5. District Savings Officer will be able to boost small savings collections.

---

6. The supervisor will be able to demonstrate how to change a paper roll on a fax machine.

---

7. The trainer will enable the learner to eliminate unnecessary delays and improve the standard of work and efficiency.

---

8. At the end of the course the participants will be able to involve themselves in improving the knowledge and skills of the people.

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9. To equip the participants with the knowledge of disciplinary proceedings, Laws procedure and skills, how to conduct the same until conclusion

---

10. The learner will be able to describe how to classify the records as per the provisions of manual of office procedure.

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11. The trainee will be able to state the fire safety regulations for high-rise buildings.

---

12. The learner will be able to use an OHP.

EXERCISE 3:

Look at following words and identify which are measurable and which are not measurable. Compare your answer with the answer keys.

1) Know 2) State 3) Describe 4) Understand 5) Compare 6) Really appreciate

7) Believe 8) Grasp 9) Type 10) Select 11) Familiar with 12) Stitch

13) Aware of 14) Differentiate 15) Walk

EXERCISE 4:

Read the following statements carefully. Mark 1/ 2/ 3/ 4 in the appropriate terms –
For Audience – 1, **B**ehaviour – 2, **C**ondition – 3, **D**egree – 4

Psychomotor - "Given a standard balance beam raised to a standard height, the student will be able to walk the entire length of the balance beam (from one end to the other) steadily, without falling off, and within a six second time span."

Cognitive - "Given a sentence written in the past or present tense, the student will be able to re-write the sentence in future tense with no errors in tense or tense contradiction.

Affective - "Given the opportunity to work in a team with several people of different groups, the student will demonstrate positive increase in attitude towards unity in diversity, as measured by a checklist completed by experts."

EXERCISE 5:

A list of objectives is given bellow. Read carefully and categorize them separately according to the domains as - Cognitive/Affective/Psychomotor.

1. At the end of the presentation, learners will be able to **describe** the key features of a Network.
2. At the end of the demonstration, learners will be able to **operate** the projector.
3. At the end of the lecture, learners will be able to **develop** the sense of responsibilities towards senior citizens.

EXERCISE 6:

List of action verbs are given below. Categorize them as Cognitive / Affective / Psychomotor according to its suitability (Knowledge / Attitude / Skill).

accept, apply, correct, ascertain, solder, associate, attain, authenticate, swim, characterize, compare, cooperate, defend, define, demonstrate, describe, distinguish, exhibit, habituate, paint, illustrate, influence, instruct, manipulate, realize, recall, recognize, sing, recite, tune

ANSWER KEY FOR EXERCISES

EXERCISE 1.

1), 2) – Knowledge (intelligence); 3), 4) – Skill (performance)

EXERCISE 2.

Compare your answers with the following answers with criteria.

1. Yes, although 'being able to drive a car' is a rather demanding statement. The objective can be observed and measured.
2. Yes, as the learner can be given examples and asked to calculate Sales Tax.
3. Yes, however, the fact that a learner has switched on a personal computer does not lead to any measurable outcome related to a job. It is advisable to link training objectives to desired outcomes.
4. No, although the person may claim to know how to respond to an error message, how can this knowledge be observed and measured? If 'know how to' is deleted from the statement it becomes a satisfactory objective.
5. No. The objective is vague and has ambiguity. The use of word 'boost' may appear to be an action verb, but is not quantifiable.
6. No. The supervisor may demonstrate how to change the paper roll, but whom to? This is a trainer centered statement that has no value; as per the criteria, it could be improved by referring to the 'learner' rather than 'supervisor'.
7. No. The objective is neither expressed in learner terms nor is it a clear statement of performance which could be observed and measured.
8. No. The objective is neither expressed in clear performance oriented action verb nor observable and measurable.
9. No. The objective is vague, trainer oriented and does not show any action verb. At best it indicates intention of the trainer.
10. Yes. Although the learner can describe the classification, it does not necessarily mean that he or she can actually do it.
11. Yes, however, depending upon the inherent danger fire in high-rise buildings, the fact that the trainee can state fire regulations does not mean that this person is competent to comply with them, or to respond correctly to a fire emergency. The action verb 'to state' is not really the most appropriate one to use as skill.
12. Yes, however, the verb 'to use' implies to all assumed performance that could include setting up the OHP, and carrying out routine servicing and repairs.

EXERCISE 3.

Measurable words:

2) State, 3) Describe, 5) Compare, 9) Type, 10) Select, 12) Stitch, 14) Differentiate, 15) Walk

Non-Measurable words:

1) Know, 4) Understand, 6) Really appreciate, 7) Believe, 8) Grasp, 11) Familiar with, 13) Aware of

The measurable words are observable and achievable.
The non-measurable words are neither observable nor achievable. Therefore only measurable words are to be used for stating objectives.

EXERCISE 4:

Psychomotor –

"Given a standard balance beam raised to a standard height (3), the student (1) will be able to walk the entire length of the balance beam (from one end to the other) (2) steadily, without falling off, and within a six second time span." (4)

Cognitive –

"Given a sentence written in the past or present tense (3), the student will be (1) able to re-write the sentence in future tense (2) with no errors in tense or tense contradiction" (4)

Affective –

"Given the opportunity to work in a team with several people of different groups (3), the student (1) will demonstrate positive increase in attitude towards unity in diversity (2), as measured by a checklist utilized by the experts." (4)

EXERCISE 5.

1. **Cognitive Domain.**

   'Describing key feature' is related to Knowledge therefore, **Cognitive** Domain.

2. **Psychomotor Domain.**

   'Operation of a projector' is related to Physical skill therefore, **Psychomotor** Domain.

3. **Affective Domain.**

   'Developing sense of responsibility' is Attitude development therefore, **Affective** Domain.

EXERCISE 6.

Cognitive	Affective	Psychomotor
apply	accept	correct
ascertain	authenticate	demonstrate
associate	characterize	exhibit
attain	cooperate	illustrate
compare	defend	instruct
define	habituate	paint
describe	influence	sing
distinguish	manipulate	solder
recall	realize	swim
recite	recognize	tune

APPENDICES **APPENDIX A**

THE POWER OF ACTION VERBS

What are Action Verbs?
Why to use Action Verb?
Before getting answer to these questions let us think – 'Why do we set Objectives?'
Because 'we want to Achieve it'. We can say that we have achieved it only after we are able to 'Measure it'. Unless an **action** is involved, it may not be possible for us to measure it. That is the rationale for an action verb!
Action verbs are powerful words that specifically describe what the subject of the sentence is doing, and the effort you used to complete a task. As per yoga science the first and foremost important action of the 'soul' is 'breath'. Likewise for a clear instruction, action verbs plays very important role. To make the instructional objectives more meaningful and precise, action verbs are used. **The power of the action verb** lies in the meaning and intention that they contain and how they bring direction and force to the sentence. Understanding the types of action verb will make instructors better writers and communicators.
Following are the alphabetized list of action verbs which will help us to choose an appropriate one for *any behaviour of instructional process and to state the objectives precisely related to cognitive, affective, and psychomotor domains. (* Engineering, Non-Engineering, and Art behaviours, etc.)

ACTION VERBS

Abbreviate	Administer	Alphabetize	Approve	Assort
Accelerate	Admire	Amend	Arbitrate	Assume
Accept	Admit	Amuse	Arc	Assure
Accommodate	Adopt	Analyze	Argue	Attach
Accomplish	Advertise	Animate	Arrange	Attain
Account	Advise	Annotate	Arrest	Attempt
Accumulate	Advocate	Announce	Arrive	Attend
Achieve	Afford	Answer	Articulate	Attract
Acquire	Agree	Anticipate	Ascertain	Audit
Act	Aid	Appear	Ask	Author
Activate	Aim	Applaud	Assemble	Authorize
Adapt	Alert	Apply	Assert	Automate
Add	Align	Appoint	Assess	Avert
Address	Allocate	Appraise	Assign	Avoid
Adjust	Allow	Appreciate	Assist	Award

Backup
Bake
Balance
Ban
Bang
Bare
Bargain
Bat
Bathe
Battle
Beam
Begin
Behave
Bend
Bisect
Bleach
Blend
Bless
Blink
Blot
Blow
Blush
Boil
Bolt
Bomb
Book
Bore
Borrow
Bounce
Bow
Box
Brake
Branch
Breathe
Brief
Brighten
Bring
Broaden
Brush
Bubble
Budget
Build
Bump
Burn
Burr
Bury
Button
Buy
Bypass

Calculate
Calibrate
Call
Camp
Canvass
Capitalize
Capture
Care
Carry
Carve
Catalog
Catch
Categorize
Cater
Cause
Centralize
Chair
Challenge
Change
Characterize
Charge
Chart
Chase
Check
Check in
Check out
Cheer
Chew
Choke
Choose
Chop
Circle
Cite
Claim
Clap
Clarify
Classify
Clean
Clear
Climb
Clip
Close
Coach
Code
Coil
Collaborate
Collage
Collate
Collect
Colour
Comb
Combine
Comfort
Command
Commence
Communicate
Compare
Compete
Compile
Complain
Complement
Complete
Compose
Comprehend
Compute
Conceive
Concentrate
Conceptualize
Concern
Conciliate
Conclude
Condense
Conduct
Confer
Confine
Confirm
Confuse
Connect
Conserve
Consider
Consist
Consolidate
Construct
Consult
Contact
Contain
Continue
Contract
Contrast
Contribute
Control
Convert
Convey
Convince
Cook
Cooperate
Coordinate
Cope
Copy
Correct
Correlate
Correspond
Cough
Counsel
Count
Cover
Crack
Cram
Crash
Crawl
Crease
Create
Credit
Creep
Criticize
Critique
Cross
Crush
Cube
Cultivate
Cure
Curl
Curve
Customize
Cut
Cycle

Dab
Dance
Dare

Darn
Daub
Deactivate
Deal
Debate
Debug
De-burr
Deceive
Decide
Decode
Decorate
Decrease
Dedicate
Deduce
Deduct
Defend
Defer
Define
Delay
Delegate
Delete
Delink
Deliver
Demarcate
Demonstrate
Depend
Depict
Depreciate
Derive
Describe
Deserve
Design
Designate
Destroy
Detail
Detect
Determine
Develop
Deviate
Devise
Devote
Diagnose
Diagram
Differentiate
Direct
Disagree
Disappear
Disapprove
Disarm
Discharge
Disclose
Disconnect
Discover
Discriminate
Discuss
Disinfect
Dismantle
Dispatch
Dispense
Display
Dissect
Disseminate
Distinguish
Distribute
Dive
Diverge
Diversify
Divide
Do
Document
Double
Draft
Drag
Drain
Draw
Dress
Drill
Drink
Drip
Drop
Drown
Drum
Dry

Earn
Eat
Edit
Educate
Effect
Elaborate
Elect
Elicit
Eliminate
Emit
Emphasize
Employ
Empty
Enable
Encourage
End
Enforce
Engineer
Engrave
Enhance
Enjoy
Enlarge
Enlist
Enrich
Ensure
Enter
Entertain
Enumerate
Envisage
Equip
Erase
Escape
Establish
Estimate
Evacuate
Evaluate
Examine
Exchange
Excite
Excuse
Execute
Exercise
Exhibit
Exit
Expand
Expect
Expedite
Experiment
Explain
Explode
Explore
Express
Extend
Extract

Fabricate
Face
Facilitate
Familiarize
Fasten
Fax
Fear
Feed
Feel
Fence
Fetch
File
Fill
Film
Filter
Finalize
Find
Fine-tune
Finish
Fire
Fit
Fix
Flash
Flip
Float
Flood
Flow
Flower
Focus
Fold
Follow
Force
Forecast
Forgive
Form
Formulate
Fortify
Forward
Foster
Frame
Frighten

Fry
Fund
Furnish

Gain
Galvanize
Gather
Gauge
Generalize
Generate
Get
Give
Glow
Glue
Govern
Grab
Grade
Grant
Graph
Grasp
Grate
Grease
Greet
Grin
Grind
Grip
Groan
Group
Grow
Guarantee
Guard
Guess
Guide

Habituate
Hammer
Handle
Hang
Harmonize
Head
Heal
Heat
Help
Hem
Highlight
Hire
Hit
Hold
Hook
Hop
Hope
Host
Hum
Hunt
Hyphenate

Identify
Ignore
Illustrate
Imagine
Impart
Implement
Import
Impress
Improve
Improvise
Include
Incorporate
Increase
Indent
Index
Indicate
Individualize
Induce
Induct
Infer
Influence
Inform
Initiate
Inject
Innovate
Inscribe
Insert
Inspect
Inspire
Install
Institute
Instruct
Insure
Integrate
Intend
Interact
Interface
Interfere
Interpolate
Interpret
Interrupt
Intervene
Interview
Introduce
Invent
Inventory
Investigate
Invite
Involve
Isolate
Issue
Italicize
Itemize

Jam
Jerk
Jiggle
Jog
Join
Jolt
Journalize
Judge
Juggle
Jump
Junk
Justify

Keep
Kick
Kick-start
Knead
Kneel
Knit
Knock
Knot

Label
Lace
Land
Launch
Lay
Lead
Learn
Leave
Lecture
Lend
Lengthen
Level
Liaison
Lie
Lift
Light
Lighten
Like
Limit
Link
Liquidate
List
Listen
Litigate
Load
Localize
Locate
Lock
Lock up
Log
Log off
Log on
Look

Maintain
Make
Manage
Manipulate
Manufacture
Map
March
Mark
Market
Master
Match
Maximize
Measure
Mechanize
Mediate
Medicate
Meet
Melt
Memorise

Mend
Merchandise
Merge
Milk
Mingle
Minimize
Mix
Mobilize
Model
Moderate
Modernize
Modify
Monitor
Motivate
Mould
Mount
Move
Multiply
Mute

Nail
Name
Narrate
Navigate
Negotiate
Nod
Nominate
Note
Notice
Notify
Nullify
Number
Nurture

Obey
Observe
Obtain
Offer
Officiate
Offset
Omit
Open
Operate
Orchestrate
Order
Organize
Orient
Orientate
Originate
Outline
Overflow
Overhaul
Oversee
Owe
Own

Pack
Paint
Paraphrase
Park
Part
Participate
Pass
Paste
Pat
Pause
Pay
Pedal
Peddle
Peel
Perceive
Perform
Permit
Persuade
Phone
Photograph
Pick
Pilot
Pin
Pinch
Pitch
Place
Plan
Plant
Play
Please
Plot
Pluck
Plug
Point
Polish
Pop
Position
Possess
Post
Pour
Practice
Praise
Pray
Preach
Precede
Predict
Prefer
Prepare
Present
Preserve
Press
Pretend
Prevent
Prick
Print
Prioritize
Probe
Proceed
Process
Produce
Program
Progress
Project
Promise
Promote
Pronounce
Proofread
Propose
Protect
Prove
Provide
Provide
Publicize
Publish
Pull
Pump
Punch
Punctuate
Purchase
Push
Put

Qualify
Quantify
Question
Queue
Quote

Radiate
Rail
Raise
Rate
Reach
React
Read
Realize
Ream
Rearrange
Reassemble
Reboot
Recall
Receive
Recite
Recognize
Recombine
Recommend
Reconcile
Reconstruct
Record
Recreate
Recruit
Rectify
Reduce
Reevaluate
Refer
Refine
Reflect
Regenerate
Register
Regroup
Regulate
Rehabilitate
Rehearse
Reinforce
Reject
Relate
Relax
Release
Rely

Remind
Remodel
Remove
Rename
Render
Renew
Renovate
Reorder
Reorganize
Repair
Repeat
Replace
Reply
Report
Represent
Reproduce
Request
Rescue
Research
Reserve
Reset
Resolve
Respond
Restore
Restrict
Restructure
Retain
Retrieve
Return
Reunite
Reuse
Revamp
Reveal
Revert
Review
Revise
Ring

Reword
Rewrite
Ride
Rinse
Rip
Roll
Rotate
Route
Rub
Run

Save
Saw
Say
Scan
Scatter
Schedule
Scrap
Scratch
Screen
Screw
Scribble
Script
Scrub
Scrutinize
Sculpt
Seal
Search
Secure
Segment
Select
Sell
Send
Separate
Serve
Service
Set

Settle
Sew
Shade
Shake
Shape
Share
Sharpen
Shave
Shear
Shoot
Shop
Shorten
Show
Shrink
Shut
Shutdown
Sign
Signal
Signify
Simplify
Simulate
Sing
Sip
Sit
Site
Situate
Skate
Sketch
Skip
Slide
Slip
Slowdown
Smash
Smear
Smell
Smoothen
Soak

Solve
Sow
Sort
Sound
Spare
Speak
Specialize
Specify
Speculate
Spell
Spill
Spin
Spot
Spray
Spread
Square
Squash
Squeak
Squeal
Squeeze
Stage
Stain
Stamp
Stand
Standardize
Start
State
Stay
Steer
Step
Sterilize
Stick
Stimulate
Stir
Stitch
Stock
Stop

Store
Straighten
Strategize
Streamline
Strengthen
Stretch
Stroke
Structure
Strum
Stuff
Submit
Subscribe
Substantiate
Substitute
Subtract
Succeed
Suggest
Suit
Sum up
Summarize
Supervise
Supply
Support
Surpass
Surprise
Surround
Survey
Suspect
Suspend
Sustain
Swim
Swing
Swipe
Switch
Switch off
Switch on
Swivel

Syllabify
Symbolize
Synthesize
Systematize

Table
Tabulate
Tackle
Tag
Take
Take care
Takeoff
Talk
Tally
Tap
Target
Taste
Teach
Tell
Terminate
Test
Thank
Thaw
Theorize
Think
Throw
Tick
Tickle
Tie
Tilt
Toss
Touch
Tow
Trace
Track
Trade
Train

Transcribe
Transfer
Transform
Translate
Transmit
Transport
Transpose
Trap
Travel
Treat
Trim
Triple
Trot out
Troubleshoot
Try
Tug
Tune
Turn
Tutor
Twist
Type

Unbutton
Uncover
Underline
Undertake
Unfasten
Unify
Unite
Unlock
Unpack
Untie
Unveil
Unzip
Update
Upgrade
Uphold

Use
Utilize

Validate
Value
Varnish
Vary
Vend
Ventilate
Venture
Verbalize
Verify
Vibrate
View
Visit
Visualize
Vitalize
Volunteer
Vote
Vouch for

Walk
Warm
Warn
Wash
Watch
Water
Wave
Wear
Weave
Weed out
Weigh
Welcome
Whip
Whirl
Whisper
Whistle

Widen
Wipe
Withdraw
Witness
Wonder
Work
Wrap
Wreck
Wrestle
Wriggle
Write

Xerox
X-ray

Yank
Yaw
Yield

Zip
Zoom
Zoom in
Zoom out

APPENDIX B

LIST OF INSTRUCTIONAL OBJECTIVES IN BEHAVIOURAL TERMS

Following is the list of objectives stated with action verbs related to few trades. While writing objectives for your Lesson Plan and Demo Plans, you can refer and make use of it.

SECRETARIAL PRACTICE

1. Draft a business letter
2. Type a business letter
3. State the parts of a business letter
4. List the importance of business letters
5. Set the margins in a document
6. Create a file
7. State the important duties of a secretary
8. Describe consonants
9. List out the types of consonants
10. Write the characteristics of consonants
11. Define typewriter
12. Name the main parts of a typewriter
13. Adjust the paper in a typewriter
14. Insert the stencil paper on a typewriter
15. Create the ribbon margin
16. Cut the stencil
17. Define shorthand
18. State the necessity of shorthand
19. Spell out the vowels
20. Explain about the preceding vowel
21. Define diphthongs
22. Describe the joined diphthongs
23. State the meaning of communication
24. Explain the important elements of communication
25. List the purpose of communication

MOTOR MECHANIC

1. Define radiator
2. Describe the constructional features of radiator
3. State the necessity of a pressure cap
4. List out the causes of engine overheating
5. Write the remedies of engine overheating
6. Tell the necessity of the air cleaner
7. Draw air filter assembly
8. Explain the function of air cleaner

9. Name the types of air cleaner
10. State the necessity of cooling system
11. List out the types of cooling system
12. Explain the types of cooling system with sketch
13. State the necessity of lubricant
14. List out the properties of lubricating oil
15. Kick start the vehicle
16. Name the types of lubricating system
17. State the need of a gearbox
18. Check the gear box
19. Open the gear box
20. Observe the oil level
21. Fill the recommended oil
22. Wash and clean the vehicle
23. Apply grease
24. Check the parts
25. Clean the cylinder
26. Fill the brake fluid
27. Join the bleeder hose pipes
28. Remove the wheels
29. Disconnect the battery from the vehicle
30. Connect the battery
31. Test the specific gravity by using hydrometer
32. Check the voltage using DC voltmeter
33. Test the charge of the battery
34. Charge the battery
35. Clean the filter element
36. Check the oil level
37. Identify the control and suspension system
38. Locate transmission system
39. Show the engine
40. Install the electrical system

ELECTRONIC MECHANIC

1. Identify the components
2. Define DC Motor
3. Differentiate between the AC motor and DC Motor
4. List the uses of circuit breaker
5. Explain the working principal of DC Motor
6. Sketch the diagram of a transformer
7. Measure AC current by using Ammeter Method
8. Classify the transformers

9. Calculate the total resistance in a given circuit
10. Service the carbon brush of a DC motor
11. Open the AC motor and check the parts
12. Write the construction details of secondary cell
13. Explain the EMF equation of a DC generator
14. Distinguish between the primary cell & secondary cell
15. Evaluate the total capacitance in a capacitor circuit
16. Dismantle the motor parts
17. Assemble the motor parts
18. Service the motor winding
19. State Ohm's Law
20. List the characteristics of a parallel resistance circuit
21. Connect the phase sequence meter
22. Describe the function of a fluorescent tube
23. Solve problems on parallel resistance circuit
24. Differentiate between the series and parallel resistance circuit
25. Draw a neat circuit diagram of DC motor
26. Write the merits and demerits of DC generator
27. Identify the terminals of single phase energy meter
28. Service the ceiling fan
29. Define Kirchhoff's current law
30. Describe the working principle of a transistor
31. Explain the working principle of half wave rectifier
32. Discriminate between the BJT and FET
33. Draw the VI characteristics of diode in forward bias
34. Write shorts on diffusion
35. Calculate the value of 'R' if V is 10 volts & current is 10 amps
36. Define the unit of capacitance
37. Write the symbol of Diode, Capacitor, Resistor
38. Derive the relationship between current amplification factors
39. Apply +5 volts using DC power supply
40. Demonstrate the frequency response of CE amplifier
41. Associate the working principle of DC generator with motor
42. Use ohm's law in a circuit to find the current
43. Prepare a chart that shows defective solder joints
44. Draw a neat sketch of a DC motor
45. Give examples of magnetic materials
46. Plot the frequency VS gain graph of CE amplifier
47. Specify the limitations of a full wave rectifier used in 2 diodes
48. Solder the resistors on circuit board
49. De-solder the components from the PCB
50. Delineate a diode

FITTER

1. Follow safety precautions
2. Wear safety glows & shoes
3. Draw a neat sketch of a hammer
4. Define caliper
5. Explain the types of file
6. State the specifications of Vernier Caliper
7. List the details of different type of gauges
8. Write short notes on height gauge
9. Name the parts of hack saw frame
10. Fit the given work piece
11. Align the jaws of a lathe machine
12. Operate lathe machine
13. Identify the parts of a drilling machine
14. State the advantages of spring joint caliper
15. Explain working principle of a milling machine
16. Draw a neat sketch of a lathe
17. Fix a drill bit in drilling machine chuck
18. List the advantages of a lathe
19. Remove the metal
20. File a job
21. Measure the work piece with the help of a screw gauge
22. Use vernier caliper to measure the diameter
23. Indicate the parts of a micrometer
24. Draw a neat sketch of a micrometer
25. State the types of drill bit
26. Describe the specifications of a hack saw blade
27. Cut the job using hack saw
28. State the different types of rivet
29. Exhibit the cutting speed of a lathe machine
30. Weld the given job
31. Mark the job
32. Punch the job
33. Grind the job
34. Replace the grinding wheel
35. Clean the machine

BEAUTY CULTURE & YOGA

1. List the importance of hair care
2. Tell the importance of skin care
3. Define nail structure

4. Explain the types of nails
5. Define skin
6. List the types of skin
7. Tell the types of skin treatment
8. Define hair spa
9. State the purpose of hair spa
10. Explain the benefits of hair spa
11. Perform hair styling
12. Explain the basic factors of hair styling
13. Explicate the types of hair structure
14. Comb the hair
15. Wash the hair
16. Arrange the trolley
17. Clean the face
18. Apply wax on hand
19. Straighten the hair
20. Colour the hair
21. Prepare a client
22. Cover the head
23. Follow the safety precautions
24. Apply bleach on the face
25. Clean the nails
26. Perform the nail art with fabric color
27. State the benefits of head massage
28. Bleach the face
29. List out the benefits of bleaching
30. Perform manicure
31. Use the hair dryer
32. Colour the nail
33. Remove the cuticle
34. Analyze the hair
35. Apply mehandi
36. Define pranayam
37. State the different types of pranayam
38. Define yoga
39. Tell the precautions before doing yoga
40. Place the yoga mate
41. State the benefits of suryanamaskar
42. Perform suryanamaskar
43. Perform gomukasana
44. Move the knee
45. Bend the body
46. Inhale
47. Exhale
48. Breath
49. Walk
50. Sit in Padmasana pose

COMPUTER

1. Switch on the system
2. Boot the system
3. Re-boot the system
4. Load a software
5. Remove a software
6. Open a file
7. Create a folder
8. Type a letter
9. Save a document
10. Cut a word
11. Copy a file
12. Paste a file
13. Move the cursor
14. Block the information
15. Select the data
16. Create a database
17. Enter the data
18. Scroll the page
19. Click the button
20. Compile the program
21. Run the program
22. Minimize the page
23. Maximize the page
24. Close the page

25. Move the mouse pointer
26. Draw a sketch
27. Use the tool
28. Merge the document
29. Replace the ink cartridge
30. Load papers in the printer tray
31. Print a document
32. Switch off the printer
33. Replace the toner
34. Manage the file server
35. Connect the system
36. Log on the system
37. Log off the system
38. Lock the system
39. Restart the system
40. Shut down the system
41. Install a software
42. Uninstall a software

ELECTRICIAN

1. Dig a pit for earthing
2. Insert an earthing plate
3. Fill the pit
4. Make earthing wire connecting
5. Check the earthing
6. Find out voltage difference between the readings
7. Check the resistance
8. Tighten the wire
9. Disconnect the connections
10. Measure voltage between phase & neutral
11. Note down the number of points
12. Draw circuit diagram
13. Identify fault components
14. Switch on tube light
15. Dismantle the tube light set
16. Open fan regulator
17. Test the calling bell
18. Repair the bell
19. Replace the chock
20. Rotate the fan manually
21. Rewind the coil
22. Record the readings
23. Open switch board
24. Identify phase neutral & earth wires
25. Switch off mains, before opening supply board
26. Use rubber hand gloves
27. Make a list of raw materials required
28. Assemble the circuit on wooden board
29. Show color coding on the circuit diagram
30. Prepare layout diagram of the circuit
31. Wire lamp holder with proper colour wires
32. Fix the lamp in the holder
33. Plug the wire
34. Set the multimeter in current range
35. Convert ohms to Kilo ohms and Milli ohms
36. Operate hand drill machine
37. Collect the materials
38. Crimp the wire
39. Assort the different types of wires
40. Scrap the excess conduit pipe
41. Do artificial respiration / breathing
42. Rescue a person in contact with live wire
43. Use plastic thick pipe to separate live wire from victim
44. Contact the doctor
45. Take the patient to the hospital
46. Solder the given job
47. Remove the plug

APPENDIX C

Guidelines / Check list for Teaching Practice

1. Use correct format of a Lesson Plan for theory
2. Use correct format of a Demonstration Plan for practical
3. Begin with good rapport
4. Check the seating arrangement
5. Check the tools & teaching aids
6. Write the title of the lesson neatly on the board
7. State the objectives clearly
8. Review / link previous knowledge to the present topic
9. Motivate the trainees by telling the purpose of learning with example
10. Present the information in sequence
11. Audibility of voice
12. Teach to the class. Have proper eye contact with pupil
13. Write neatly on the Chalk Board
14. Avoid spelling & procedural mistakes
15. Use colour chalks appropriately
16. Use duster to clean the board
17. Use pointer whenever necessary. Do not shake the pointer
18. Use visual aids at right time and explain
19. Stress the important points
20. Repeat the operation & insist on safety during demonstration
21. Use proper type of questions in all the stages
22. Receive, reward, and repeat the answer
23. Summarize the lesson with reference to the objectives
24. Finish the lesson on time
25. Extend the teaching process. Tell what will be the next lesson

APPENDIX D

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