

ESSENTIALS OF TEACHING MATHEMATICS AND CURRICULUM TRANSACTION

UNIT 3

MAXIMS OF TEACHING MATHEMATICS

COMPILED BY
REEMA NIKALJE
ASST.PROF. PHCER

Every teacher wants to make maximum involvement and participation of the learners in the learning process. He sets the classroom in such a way so that it becomes attractive for them. He uses different methods, rules, principles etc in order to make his lesson effective and purposeful. He uses general rule or formula and applies it to particular example in order to make teaching –learning process easy and up to the understandable level of students.

These settled principles, tenets, working rules or general truths through which teaching becomes interesting, easy and effective are called the **maxims of teaching**. They have universal significance.

Maxims, similarly, are short statements that are considered as a general rule of conduct. The maxims of teaching are a set of statements that experienced teachers have put forward. These maxims are universal facts and are accepted throughout the globe. When a teacher understands the maxims effectively, the teaching gets more systematic and efficient.

Maxims of Teaching are the universal facts found out by the teacher on the basis of experience. They are of universal significance and are trustworthy.

Every person who is expected to enter into the teaching profession have to familiarise himself with the maxims of teaching. Their knowledge helps him to proceed systematically. It also helps to find out his way of teaching, especially in the early stages of teaching.

The different maxims of teaching are briefly explained below.

1. From known to unknown:-

When a child enters into school, he possess some knowledge and it is the duty of teacher to enlarge his previous knowledge. Whatever he possesses should be linked with the new knowledge. If we link new knowledge with the old knowledge our teaching becomes clearer and more definite. This maxim facilitates the learning process and economises the efforts of the teacher and the taught. This way of teaching helps the learners to understand things fully. This way the teaching becomes definite, clearer and more fruitful. This maxim is based on the assumption that the student knows something. We are to increase his knowledge and widen his outlook. We have to interpret all new knowledge 'in terms of the old. It is said that old knowledge serves as a hook on which the new one can be hung. Known is trustworthy and unknown cannot be trusted. So while teaching we should proceed from known and go towards unknown.

For example, while teaching any lesson, the teacher can link the previous experiences of the child with the new lesson that is to be taught.

2. From simple to complex:-

The main objective of teacher is to teach and the learners objective is to learn something. In this process of teaching and learning, simple or easy things should be first presented to the students and gradually he should proceed towards complex or difficult things. The presentation of simple material makes the learners interested, confident and feel encouraged. As they will show interest towards the simple material, they become receptive to the complex matter. On the other hand, if complex matter is presented first, the learner becomes upset, feel bored and finds himself in a challenging situation.

For example in mathematics we first present the idea of $+$, $-$, \times and then division. When the child gets admitted to 9th and 10th class we introduce algebra, surds, trigonometry, geometry etc. As he proceeds further he becomes familiar with the complex material like matrices, integration, differentiation etc. In this way a learner shows interest by proceeding from simple mathematics to complex one. But if we reverse the situation, he will find himself in a challenging situation and will leave his studies due to complexity of matter. Simplicity or complexity of the subject matter should be determined according to the view point of the learners. It makes learning convenient and interesting for the students. Classroom teaching is formal where the teacher tries to teach and the students try to learn things. In this process of teaching-learning, the teacher should see that simple things are presented first to the students. That way they will start taking interest. Once they become interested, then gradually complex type of things can also be learnt by them. By learning simple things, they feel encouraged and they also gain confidence. On this basis, they become further receptive to the complex matter. On the other hand, if complex types of things are presented to the learner first, he becomes upset, feels bored and finds himself in a challenging situation lot which he is not yet ready being immature and unripe. Gradually more difficult items of learning may be presented to the students. It will smoothen teaching being done by the teacher and make learning convenient and interesting for the students.

3. From concrete to abstract:-

Concrete things are solid things and they can be visualized but abstract things are only imaginative things. The child understands more easily when taught through their senses and never forgets that material. On the other hand if abstract things or ideas are presented, they forget it soon. As Froebel said, —Our lessons ought to start in the concrete and end in the abstract. For example when we teach the solar system, we first visualize the sun through our senses and give the concept of eight planets, galaxies, meteorites etc. Through this process, the learners understand the materials more easily. Some power of imagination also develops in them. But if we reverse the situation, it will become difficult for learners to understand anything. Another example, when we teach counting to the students we should first take the help of concrete objects like beads, stones etc. and then proceed to digits and numbers. Concrete things are solid things and they can be touched with five senses. But abstract things can only be imagined. So it is rather difficult to teach the children about abstract things. The students are likely to forget them soon. On the other hand, if we teach the students with the help of concrete objects, they will never forget the subject matter. For example when we teach counting to the students we should first examine concrete nouns like, laptop, book, Pen etc. and then proceed to digits and numbers. The stars, the

moon, the sun etc. being taught first whereas the abstract thing:, like planet, satellites etc. should be taught afterwards.

4. From particular to general:-

A teacher should always proceed from particular to general statements. General facts, principles and ideas are difficult to understand and hence the teacher should always first present particular things and then lead to general things. While teaching, the teacher should first of all take particular statements and then on the basis of particular cases, generalization should be made.

5. From Whole to Parts:

This maxim is the offshoot of gestalt theory of learning whose main emphasis was to perceive things or objects as whole and not in the form of parts. Whole is more understandable, motivating and effective than the parts. In teaching, the teacher should first give a synoptic view of lesson and then analyze it into different parts. It is actually the reverse of the maxim —analyses to synthesis. In teaching, the teacher should try to acquaint the child with the whole lesson first and then the different portions of it may be analyzed and studied intensively. This principle holds good while teaching a thing to the small children. At the early stages, the child loves to speak full sentences because in daily life situations, full sentences are used. The child should be given a full sentence. Then he may have full familiarity with the different words contained in that sentence. Later he may have the knowledge of words. Then he will have the knowledge of different letters forming the words. It will help the teacher to teach better and the learners to learn things conveniently

Approaches of curriculum construction

Unit 3b

INTRODUCTION :

Curriculum is intimately related with all aspects of education. While education is a developmental process towards a converted goal, curriculum is the input goal oriented direction to that process curriculum is the plan for guiding the goal – oriented educative process. After topics have been selected according to the relevant fundamental principles described above, they have to be systematically arranged so as to facilitate meaning full and effective transaction. The content show be arranged in a systematic manner. In order to realize the objective it is inevitable to organize the curriculum in the most psychological and logically coherent manner.

Different approaches for organizing the curriculum are spiral, topical, concentric, an unit approach.

TOPICAL METHOD

The spiral approach is nothing but devising a strategy that fosters continuous un broken learning of the subject matter of social science through the various wages of education.

According to this approach, children in a primary classes being to develop simple generalization about man carrying of his everyday activities. They work with more and more complex items of information and as a result deepen and reshape the dimension of the related generalization already developed earlier

In this method a particular topic is started in a particular grade and finished over there only. Thus topic marked for particular grade must not be touch in other grade. The selected topic becomes the centre of correlation. It is opposite of concentric method. Concentric method involves the breaking up of a topic into suitable portions, whereas topical method aims at keeping it intact. In topical method a topic is taken as unbreakable unit. It is based on the principal that any topic when begun should not be left half done. It should be finished in its entirety, before the next topic is taken.

PROCEDURE

‘Topical method’ is more a system of arrangement of subject matter than a method of teaching. Its adoption depends on a suitable organization of the syllabus. The topic is to be taught at as stretch, without a break or a gap. The other approach to this method is that a topic is selected and is made the basis many other topics. The selected topic becomes the centre of correlation.

For example: While dealing with the Unitary method, the students can be acquainted with time and work, simple interest, average, percentage and even extended to simple equation of algebra.

Merits of Topical method:

Continuous teaching of topic not only save the student from divided attention, but may ensure their full and whole – hearted concentration on the topic. A natural link and sequence will exist in the day today work in class room. The student's complete attention, ability and capacity will be directed exclusively to the topic under study for a sufficiently long time.

When a topic is treated as centre for other topic, it facilitates the learning process. It illustrates the advantage of correlation.

Drawbacks of Topical methods

Keeping psychological reason in view, it will be foolish to take a topic like area in grade 4 and try to finish in at one stretch. The student may be able to understand the elementary portion, but will certainly not be able to attempt its most difficult question.

The interest of the student may go away within a month, if we focus on only on a particular topic.

This method does not provide any opportunity for year to year revision.

Conclusion

The method or system does not possess any significant advantage. Moreover, there is a better substitute in the form of Concentric method. The only advantage of this method is that a topic is made a centre of other topics, which can provide good step towards correlation. As a method, it is only an idea, which should be kept in mind to be used only at the appropriate opportunity.

CONCENTRIC METHOD

The whole curriculum is spread over a number of years. Quite often a general treatment of almost all the topics are attempted at the beginning and it is developed in successive year according to the mental development of the pupil in the beginning of the pupil in the simplified way. In the next years more and more details of its parts are gradually added. It follows the maxims of teaching such as from whole to part simple to complex easy to difficult etc.

Concentric approach is continuous steps by step. 1st Year, 2nd Year, 3rd Year, 4th Year etc. The content is studied step by step.

This method implies breaking up of topic into different subtopic and the portion is allotted to different grades. This is a system of organising a course rather than a method of teaching. It is, therefore, better to call it concentric system or ap-proach. It implies widening of knowledge just as concentric circles go on extending and widening. It is a system of arrangement of subject matter. In this method the study of the topic is spread over a number of years. It is based on the principle that subject cannot be given an exhaustive treatment at the first stage. To begin with, a simple pre-sentation of the subject is given and further knowledge is imparted in following years. Thus beginning from a nucleus the circles of knowledge go on widening year after year and hence the name concentric method.

Procedure

A topic is divided into a number of portions which are then allotted to different classes. The criterion for allotment of a particular portion of the course to a particular class is the difficulty of portion and power of comprehension of students in the age group. Thus it is mainly concerned with year to year teaching but its influence can also be exercised in day-to-day teaching. Knowledge being given today should follow from knowledge given yesterday and should lead to teaching on following day.

Merits of Concentric Method

- (i) This method of organisation of subject matter is decidedly superior to that in which one topic is taken up in particular class and an effort is made to deal with all aspects of the topic in that particular class.
- (ii) It provides a framework from course which is of real value to students.
- (iii) The system is most successful when the teaching is in hand of one teacher because then he can preserve continuity in the teaching and keeps his expanding circle concentric.
- (iv) It provides opportunity for revision of work already covered in a previous class and carrying out new work.
- (v) It enables the teacher to cover a portion according to receptivity of learner.
- (vi) Since the same topic is learnt over many years so its impressions are more lasting.
- (vii) It does not allow teaching to become dull because every year a new interest can be given to the topic. Every year there are new problems to solve and new difficulties to overcome.

Drawbacks of concentric Method of curriculum construction

For the success of this approach we require really capable teacher. If a teacher becomes over ambitious and exhausts all the possible interesting illustrations in their introductory year then the subject loses its power of freshness and appeal and nothing is left to create interest in the topic in subsequent years.

In case the topic is too short or too long then also the method is not found to be useful. A too long portion makes the topic dull and a too short portion fails to leave any permanent and lasting impression on the mind of the pupil.

Conclusion :

It is a good method for being adopted for arranging the subject matter. It should be kept in mind, by the organisers, while organising the subject matter no portion is too long or too short. It would also be much useful if the teacher teaches the same class year after year so that he can reserve some illustrative examples for each year and thus can maintain the interest of the students in the topic.

PHICER

UNIT 3C

PEDAGOGICAL ANALYSIS, UNIT PLANING & LESSON PLANNING

Pedagogy

Pedagogy is the science of teaching. It is the scientific and artistic planning of instruction for a formal situation. Primarily, pedagogy explains effective teaching methods and strategies. Effective teachers may make use of many teaching strategies (pedagogic approaches) in the classroom because there is no single, universal approach. A method may not be suitable for all contents or all situations.

The word pedagogy is derived from two Greek words: *paidagogos* or *paidagogia*, in which *paida* means 'child' and *gogos* means 'lead.' *Paidagogos* literally means 'to lead the child' or 'to guide the child'.

Pedagogical approaches

Pedagogical approaches are different based on their characters.

Teacher-Centred Pedagogy:

Teacher designs the pedagogic transactions. Teacher is the hero in this approach. Teacher-centred pedagogy positions the teacher at the centre of the learning process. The methods may be lecture, rote memorization, and the like in this approach. This approach is often criticized, especially when students complete only lower-order tasks and are afraid of the teacher.

Learner-Centred Pedagogy:

It gives importance to student-centred methods like constructivist, participatory, activity-oriented and etc. Learners are given an active role in the learning process. The teacher facilitates this process, but also creates and structures the conditions for learning.

Learning-Centred Pedagogy:

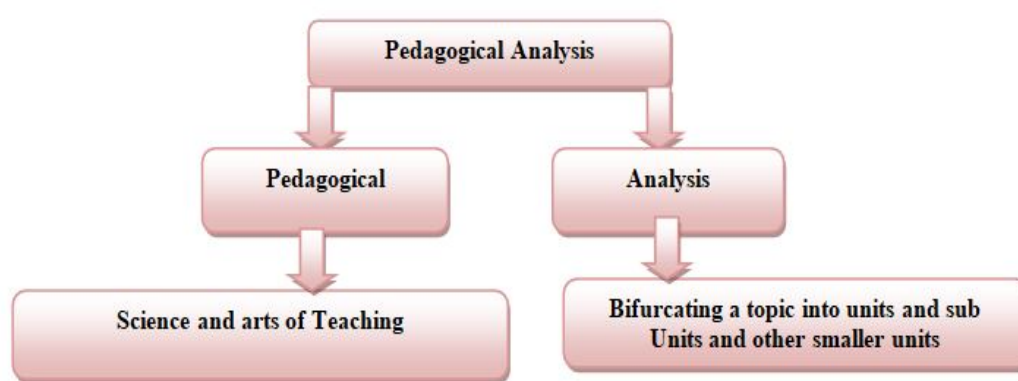
“Learning-centred pedagogy” gives importance to the learners’ place, region, culture and local resources. It is the typical form of culturally relevant pedagogy.

Pedagogic Analysis

The term pedagogical analysis is the combination of two words: “Pedagogical” and “Analysis”. It is the scientific and analytical study of teaching a topic. The sole objective of pedagogical analysis is to make the teaching learning process more scientific, effective, and impressive. The term pedagogical analysis has been explained with the help of the following chart.

Pedagogic analysis means analysing the teaching content (the content to teach) with pedagogic vision. Pedagogic analysis is the selection of appropriate objectives and strategies in instructional situations to access the appropriate teaching to transact a content. It is the comprehensive vision of required tasks, strategies for realization of specific goals that facilitates effective teaching. It is also explained that Pedagogic Analysis is the logical and systematically carried out breaking up of the teaching content (content to teach) from the point of view of a pedagogue (teacher) for the purpose of effective transaction.

Pedagogical analysis is related to the methodology or process of instruction. It focuses on the teaching aspect instead of the effective learning. The word analysis stands for process of breaking or separating a thing into its smaller parts, elements or constituents.



Need of Pedagogical analysis:

- Pedagogical analysis is selection of appropriate objectives and strategies in various instructional situations to access the level of actual teaching at the end.
- A comprehensive goals facilities effective teaching. So Pedagogical analysis offers enormous potential for improving the delivery of information in all form of education.
- It involves various logical steps to arrive at logical inference.
- It also helps the students to understand the concepts, principles and phenomena.
- It helps the teacher to implement proper evaluation procedure
- It helps the teacher to design a plan of action to for immediate feedback, diagnosis and remediation
- It makes the instructional programmed more systematic and content appropriate.
- It reveals the place of subject in all the educational process.
- It an insight to the teacher to plan his teaching
- It distinguishes the objectives of teaching subjects at different levels and in different medium from each other.
- Through it a teacher also come to know about the different objectives to be achieved by teaching different content in classroom
- It is a tool to achieve the cognitive, affective and psychomotor development of a student.

Importance of pedagogy in Teaching

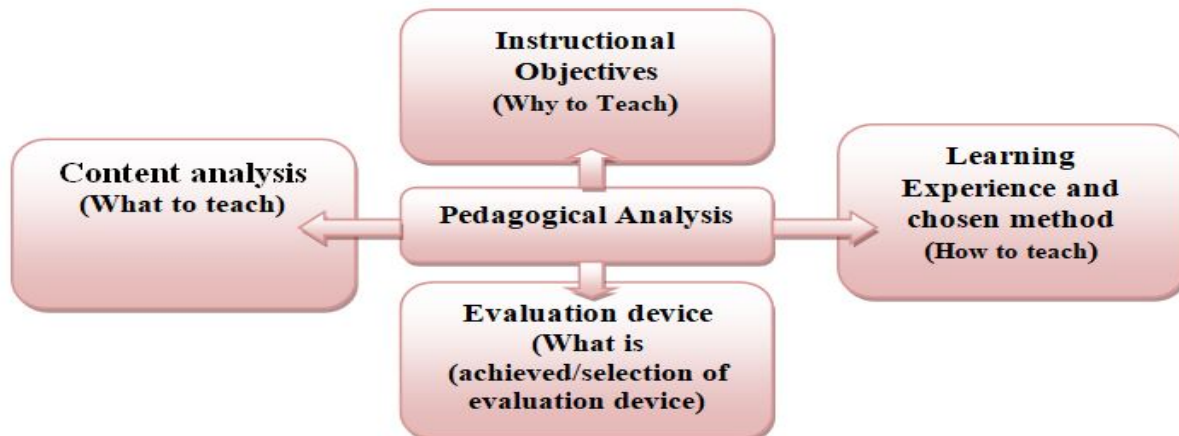
- Improved quality of learning
- Students more receptive during learning sessions
- Improved student participation
- Knowledge imported effectively across a spectrum of learners
- Development of higher cognitive skills in students
- It helps the place of any unit of the text book in the structure of the subject
- It creates the attitude in the teacher trainee for deciding the training strategies according the different levels of student

Pedagogic analysis is essential because;

- ✓ Pedagogic analysis gives exact perception on what to teach
- ✓ Assures effective methods of teaching
- ✓ Giving support for effective teaching
- ✓ Assures learners participation in the teaching process
- ✓ Assures effective evaluation and follow up
- ✓ Assures psychological support to the teaching contexts
- ✓ It is essential for effective teaching
- ✓ It assures carrying out of smooth teaching
- ✓ It assures better teaching and better learning outcomes

Components of pedagogical Analysis:

Pedagogical analysis is based on four essential pillars along with their mutual relationship and interdependence for being considered essential in the effective teaching learning process. The components of pedagogical analysis are given below with the help of the following chart.



Four fold activities of Pedagogical Analysis: To make teaching learning process more effective, systematic, scientific and impressive we have to carry out these different activities of pedagogical analysis. Hence it is better to discuss and understand the following constituent parts of pedagogical analysis.

- 1) Unit Analysis/Content Analysis.
- 2) Formulation of instructional objectives.
- 3) Learning experience and chosen method.
- 4) Evaluation method.

(I) Unit Analysis/ Content Analysis: Unit means topic and analysis means dividing it into parts. The content analysis is not an easy task. In doing content analysis a teacher should have sound knowledge of teaching techniques teaching maxims and the nature of the subject matter. Before teaching, a teacher has to divide the topic into smaller parts/units. During the time of dividing unit into smaller and simpler sub-units the teacher has to identify and write down teaching points. Teaching points is the smallest important unit of teaching from the subject matter that is to be presented before the students. At the time of selecting teaching points, a teacher has to be vigilant, careful, skillful, intelligent and systematic in approach.

(II) Formulation of objectives: Pedagogical Analysis is the systematic and scientific analysis of the teaching and the content. Formulation of the objectives is the second step in pedagogical analysis. After carried out the first step of pedagogical analysis that is unit analysis, a teacher has to formulate the instructional objectives in behavioural terms because the instructional objectives are the learning outcomes. It is the end products of teaching learning process. Learning is change in behaviour. This change in behaviour may be any of the domains -: Cognitive, Affective, or Psychomotor. A successful teaching is based on a successful realization of formulated instructional objectives. Before formulating instructional objectives a teacher needs to study thoroughly the different approaches of behavioural objectives i.e. Bloom's Taxonomy of teaching learning objectives, Robert Mager's approach, Robert Millar's approach and RCEM approach. The teacher is required to have a good knowledge of the psychological and educational principles of teaching learning process.

(III) Learning Experiences and chosen method: Learning experiences and chosen method is the third step in pedagogical analysis. After conforming about what to teach (subject matter) and why to teach (instructional objectives) then the teacher has to choose the best methods, maxims, techniques, tactics, strategies, approaches to teach the particular subject matter. The teacher should have the clear knowledge about the teaching skills and the knowledge of using audio visual aids effectively. An English teacher has to select suitable methods i.e. Direct Method, Bilingual Method, Translation Method and the best approach for properly learning outcomes.

(IV)Evaluation Device: This is the last and foremost step of pedagogical analysis. It is very well known that evaluation is desired changes in the behaviour of the students. The total behavioural outcomes are measured with the help of the evaluation devices. Right evaluation is the tedious job. It requires lot of skills and knowledge on the part of the teacher. After having taught the lesson, the teacher attempts to know how is his teaching was. Evaluation at the end of the lesson includes two aspects-: (i) Recapitulation and (ii) Home work. After the end of the lesson the teacher carries out recapitulation. He asks certain questions on the basis of the lesson he has just taught. Question may be asked from the whole class and the individual students. The questions are generally objective and open ended. After making recapitulation questions to the students, then the teacher has to give the home work to the students. The home work given to the students should not be over loaded and that should be related to the class work. It should be checked out immediately; otherwise the students are not motivated to do any homework further.

Steps of Pedagogical analysis:

- Divide the contents of the selected unit into suitable sub-units and arrange the selected sub-units into a number of required periods.
- Briefly write the essence of the content of the selected sub-unit.
- Write appropriate previous knowledge required for the sub unit

- Write appropriate instructional objectives to be selected for the sub-unit.

Contents of Pedagogical Analysis:

- Content analysis: of the unit/topic/concept being taught by the teacher in the subject.
- Setting of the teaching or instructional objectives of the content material of the topic in hand by writing them in specific behavioral terms.
- Suggesting methods, techniques, teaching learning activities, aids and equipments helpful for the teaching
- Suggesting appropriate evaluation devices in the form of oral, written or practical activities and test questions.

Steps of content analysis:

- Copy and read through the transcript. Make brief notes in the margin when interesting or relevant information is found.
- Go through the notes made in the margins the list the different types of information found.
- Read through the list and categorize each item in a way that offers a description of what is about.
- Identify whether or not the categories can be linked any way and list them as major categories can be linked any way and list them major categories/theme and or minor categories/themes.
- Compare and contrast the various major and minor categories

The Process of a Content Analysis:

According to Dr. Klaus Krippendorff, six questions must be addressed in every content analysis.

- Which data are analyzed?
- How are they defined?
- What is the population from which they are drawn?
- What is the content relative to which the data are analyzed?
- What are the boundaries of the analysis? • What is the target of the inference?

Teacher's pedagogic practices:

- Teacher spoken discourse (Including instruction, explanation, metaphor, questioning, responding, elaboration and management talk)
- Visual presentation (using a chalkboard, writing, diagrams, pictures, textbook, learning aids such as stones, experiments, drama) to understand or construct the new knowledge being presented or indicated to the learners
- The act of setting or providing tasks for learners to cognitively engage with new content or develop physical skills such as experimentation, reading, writing, drawing, mapping, rehearsing, problem solving, practicing • A variety of social interactions, in which language is central between learners or learners and teacher such as pairs, groups, individually or whole class.
- Teachers' monitoring, use of feedback, intervention, remediation and formative and summative assessment of the students or assessment by the students themselves.

Teacher's Activity in Pedagogical Analysis:

- ✓ Identifies desired learning outcome and select tasks accordingly
- ✓ Presents information
- ✓ Models procedures or techniques
- ✓ Orchestrates activities and manages behaviour.
- ✓ Asks questions to check understanding and recall of information
- ✓ Create a supportive environment
- ✓ Encourage reflective thought and action
- ✓ Enhance the relevance of new learning
- ✓ Facilitate shared learning
- ✓ Make connections to prior learning and experience
- ✓ Provide sufficient opportunities to learn
- ✓ Inquire into the teaching learning relationship

Merits of Pedagogical Analysis:

- It encourages met cognition and therefore will develop learner skills or build learning power. • Increased independence of students. • on task behavior and the quality of work improves as students take each task • improved decision making in real world, complex, real time problem spaces • prompts students to engage in information analysis • Prompts students to engage in information search.

Limitation of Pedagogical Analysis:

- Pre-assumption by making a lesson plan or pedagogical analysis always may not suit the classroom learning situation • Previous learning outcomes as assumed earlier may not match with the present level of knowledge of the students in the class-room. • The format may appear to give a systematic picture of the lesson. Teacher is confined within a hard rigid format of planning, so that flexibility is absent. • Teacher should enjoy freedom to divide subunits according to number

of periods and there should not be any hard and fast rule for this. There cannot be single criteria for this because teachers plan is bound to change depending on the standard of pupils in different schools. • Lesson planning is of different types and teachers follow predominantly any one teaching style out of many. It becomes highly confusing for a reflective teacher to follow any definite lesson plan for every class, for every subject throughout the year

UNIT PLAN

A unit is a related learning segment which consists of a few lessons, along with an outline of its actual execution in the classroom. Thus, a unit may have several lessons. Therefore it may not be completed in one class period. It may take several class periods to complete a unit. If unit plans are given in a teacher's guides, they might be very useful for the science teachers specially the new teachers. Unit planning is a practice which can help a teacher in planning teaching and learning activities logically, in a broader sense. A teacher practices lesson planning as a regular activity but isolated lesson planning can create a kind of a divide or a separation in the related content.

A

unit plan provides an opportunity not only to plan in advance, but to plan the whole unit in a comprehensive way. If unit planning is done effectively, learning experiences can be maximised and multiplied. Without unit plan, teachers tend to focus on a class activities that may not address the problem of children related to the subject matter. In science, unit planning is done through integrating the subject matter thematically. Learners have multiple opportunities to develop and apply what they have learned. The objectives and outcomes of a unit plan help the teacher articulate to the children what they will know and be able to do in a specific period of time

Developing a Unit Plan

Generally to develop a unit plan in science a general framework or guidelines are needed. Various formats and approaches can be used for constructing unit plans. The essential steps are as follows;

1. Division of unit
2. Determining the objective of a unit
3. Deciding Method/ Technique of teaching
4. Planning about Interaction
5. Evaluation

1.Division of Unit into subunits

The first step is the division of unit into a subunit or a lesson. In this step content of unit is divided into some meaningful smaller parts, which can be treated as one lesson. Sometimes, subunits may be covered in more than one lesson, but if the whole content is related to one concept, it can be divided into one subunit only. If the content divided into one subunit is big, it

can further be divided into lessons. The term lesson is used here in respect to the content covered in one period.

2. Determining the objective of a unit

The second important step is determining the objectives of the unit. These are achievable objectives, related to content and are expected to be evaluated after completion of the unit. These objectives are generally framed in behavioural terms and are teacher centred. These are different from a lesson plan, where the objectives are described in child centred behavioural terms. It is expected that after completion of one unit, children will achieve those objectives and the teacher will assess them with the help of a unit test.

3. Deciding Method/ Technique of teaching

After the division of content into subunits or lessons and determination of teaching learning objectives, the teacher has to decide what techniques/ methods will be used in teaching learning process to achieve these objectives. Planning includes the planning of content specific teaching method, techniques, activities, experiments, illustrations, demonstrations, teaching aids to be used etc. If a teacher plans all these things in unit plan, he can arrange/ manage the required material in time before going to the class. If it includes experiment, it can help him to practice also before facing the children. It also reduces the chances of failure in real classroom situation.

4. Planning about Interaction

In this step, one has to plan what kind of interaction will be there in actual classroom situation between the teacher and children. As a teacher, what techniques will be adopted to interact with the children like questioning, discussion, asking examples, or explanation or participating in activities and what will be the role of a teacher such as an observer, an innovator, an explorer or as a judge. This kind of planning helps to develop lesson plan that can be implemented smoothly while teaching.

5. Evaluation

A teacher has to plan the techniques and procedures he/she will use to evaluate the progress of children in the particular unit. She has to outline the techniques of evaluation like oral testing, demonstrations, or written unit test with the unit plan. She has to decide what kind of questions and harmony will be there in evaluation and what will be the duration of unit test.

Advantages of Unit plan

Unit planning is an important phase of teaching learning process that has the following advantages;

- ✓ It breaks up the entire work into small sections, small enough so that pupils can easily grasp the scope of these during the observation.
- ✓ It helps in classifying the general and specific objectives of teaching.
- ✓ It helps to cater to the needs, nature and aptitudes of the students..
- ✓ It helps in saving time and planning work effectively..
- ✓ It helps in saving time and planning work effectively..

- ✓ It makes teaching learning clear, precise and comprehensive.
- ✓ It develops self confidence among students for it evolves opportunities for meaningful experiences wherein they can organise and review their learning.

Disadvantages of Unit Plan

- i) It requires committed and hardworking teachers
- .ii) It increases the work of a teacher
- .iii) Difficulty sets in when topics are unrelated and unsystematically arranged
- .iv) Evaluation becomes a difficult process.

LESSON PLANNING

Lesson Planning means the planning of a daily lesson related with a particular unit of a subject to be covered by the teacher in a specific school period for the realization of some stipulated instructional objectives. It is a sort of theoretical chalking out of the details of the journey which a teacher is going to perform practically in the class room along with his students. It may include objectives, points to be made, questions to be asked, reference to materials, assignments etc. Lesson planning calls for intelligence, skill, ability and experience of the teacher. A lesson plan reveals the approach of teaching and also mastery of the teacher over his subject. It however, does not mean that the teacher has to follow it slavishly, he should use the lesson plan as basis for developing the lesson through flexible instructional techniques. There is danger in depending solely on the lesson plan. Some unforeseeable event may occur in the class room which may upset the previous planning of the teacher. In such cases, the teacher has to be resourceful enough to manage the situation, on un-skilful teacher is sure to be in trouble in such a situation. A lesson plan should therefore be conceived as a guide to effective teaching. It is advised that the lesson plan should be brief and include the broad points only so that the teacher can treat the details with freedom and according to the circumstances demands, the teacher should come well prepared so that any departure from the pre-planned arrangement does not cause any difficulty.

NEED OF LESSON PLANNING

The lesson plan does not allow the teacher to deviate & it keeps him on the way. In the process of teaching Lesson plan is needed due to the following reasons:

1. Through lesson plan, the teacher regularly achieves the teaching objectives and process in the form of complete objectives and processes
- .2.A lesson plan develops the possibilities of adjustment in the class room situation, which makes the teaching effective
- .3.A lesson plan helps in recalling every step of curriculum unit.
- 4.A lesson plan helps in planning the process of teaching on the basis of class control, motivation and individual difference.

IMPORTANCE OF LESSON PLANNING

Lesson planning is a device essential to economic time and to make the teaching systematic. It enables the teacher to aim at objectives appropriate to the lesson and suitable for the class and thus guides him in the attainment of those objectives. A lesson plan enables the teacher to cover a wider field in a limited time. Since the questions or assignment are previously planned, they are thought provoking and relevant. The important questions relating to the scientific topic and the application of science to our everyday life find relevance as planned rather than extraneous questions. The teacher feels confident with the lesson plan by his side, because he is aware of the difficulties that may arise in the class room and is prepared to deal with them.

A lesson plan reminds the teacher of the specific goals to be attained through class room teaching and gives him a clear picture of what is to be pursued and what is to be avoided. Planning a science lesson for the class requires selection and organization of the subject matter of the lesson for presentation in the class. He/she also has to select the teaching aids and materials such as apparatus, equipment, charts, models, diagrams or films etc. before giving the lesson. Moreover, it requires him to plan activities for demonstration or individual and group practical work. It also provides for planning activities to develop the other virtues particular to the teaching science. Black board summaries of essential points, class tasks and home assignments are other important features of the lesson plan. A lesson plan enables the teacher to connect the present lesson with the previous lesson and the lesson that will come next and thus to maintain a continuity in teaching. Teachers should indicate in the lesson plan the reference materials such as books and journals to be read in connection with the lesson and also arrange for field trips or visits if necessary which may increase the effectiveness of learning. Adjusting the lesson to the allotted time is a problem to be solved by the individual teachers.

ADVANTAGES OF LESSON PLANNING

Planning is essential for every aspect of human activities but more planning is required for a planned teaching. In the absence of lesson planning, the entire teaching becomes hotchpotch. Hence, the students and teachers must get the lesson planned. The following are the advantages of lesson planning.

1. The lesson plan stimulates the teacher to think in an organized manner.
2. The lesson plan helps the teacher to understand the objectives/properly/fully.
3. The lesson plan helps in creating the interest of students towards the lesson.
4. A proper co-relation is established between the new and old lesson.
5. The lesson plan provides guidance to the teacher as to what and how he/she should teach.
6. This compels the teacher to think about and use teaching aids.
7. This helps the teacher to choose the best teaching method.
8. The lesson plan inspires the teacher to ask proper and important questions.
9. This helps the teacher to teach, keeping in mind the individual difference.
10. The teaching matter is organized in a time frame.
11. Proper care is taken to take into consideration, the level and previous knowledge of students.
12. This develops self confidence in the teacher.
13. This helps the teacher in evaluating his teaching.
14. This clarifies the outlook of the teacher.
15. This lays stress on instructional materials.
16. The lesson plan brings definiteness and regularity in the thinking of the teacher.
17. This inspires the teacher to improve the further lesson.

LIMITATION OF LESSON PLANNING

- 1.This traps/entangles the teacher. In the traditional/instructional colleges, there is no mention of flexibility. Thus, the teacher finds himself helpless in new situation
- .2.Sometimes, these obstruct the independence of the teacher.
- 3 .Sometimes, simple matters become complicated. The teaching process becomes more difficult.
4. In lesson planning, more time is required to plan the lesson

PHICER