Six month special Training Programme in Elementary teaching for Primary School Teacher having B. Ed. / B. Ed. (Special Edn.) / D.Ed. (Special Edu.)
(ODL Mode)

Curriculum – IV

Environmental Studies, Science and Social Studies

West Bengal Board of Primary Education,
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Forewords

It gives me immense pleasure in presenting the materials of **Curriculum – IV (Environmental Studies, Science and Social Studies) for Six Month Special Training Programme in Elementary Education** for the primary school teachers in West Bengal, having B. Ed. / B. Ed. (Special Education)/ D. Ed. (Special Education). The materials being presented have been developed on the basis of the guidelines and syllabus of the NCTE.

Care has been taken to make the presentation flawless and in perfect conformity with the guidelines of the NCTE.

Lesson-units and activities given here are not exhaustive. Trainee-teachers are at liberty to plan & develop their own knowledge and skills through self learning under the guidance of the counsellors and use of their previously acquired knowledge and skill of teaching.

This humble effort will be prized, if the materials, developed here in this Course-book, are used by the teachers in the real classroom situations for the development of the four skills – Listening, Speaking, Reading and Writing of the primary school children .

March-12, 2015

Prof. Dr. Manik Bhattacharyya
President, WBBPE,
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আমাদের কথা

শিক্ষার অধিকার আইন (RTE Act)-২০০৯ -এর ধারা উপধারা মাথায় রেখে বি. এড. প্রশিক্ষণপ্রাপ্ত কর্মরত প্রারম্ভিক শিক্ষকদের ডি. এল. এড. প্রশিক্ষণ না থাকা সত্ত্বেও, এই স্তরের উপযোগী শিক্ষক/শিক্ষিকা হিসাবে গড়ে তোলার জন্য N. C. T. E ৬ মাসের বিশেষ প্রশিক্ষণের ব্যবস্থা করেছেন। এই স্বল্প সময়ের প্রশিক্ষণ যাতে দুই বৎসরের ডি. এল. এড-এর সমতুল হয় তার জন্য প্রশিক্ষণ পাঠ্যক্রম ও শিক্ষণ পদ্ধতিকে উৎকৃষ্ট পর্যায়ে আনার যথেষ্ট প্রচেষ্টা করা হয়েছে প: ব: প্রা: শিক্ষা পর্ষদের তরফে।

মনে রাখা দরকার পঠন-পাঠন হবে শিক্ষার্থী বান্ধব এবং শিশু কেন্দ্রিক। অনুসৃত হবে কর্মভিত্তিক, আবিস্কার ও অনুসন্ধানের মাধ্যমে পঠন-পাঠন প্রক্রিয়া। শিশুকে সমস্ত রকম মানসিক ভীতি ও উদ্বেগ থেকে মুক্ত করে স্বাধীন ভাবে মত প্রকাশে সাহায্য করতে হবে। শিশুর বিনাব্যয়ে বাধ্যতামূলক শিক্ষার অধিকার আইন, ২০০৯-এর ২৯নং ধারার আটটি উপধারা এই প্রসঙ্গে স্মরণ করা যেতে পারে। মূল্যায়ণ প্রসঙ্গে বলা হয়েছে যে শিশুর জ্ঞানের উপলব্ধি ও প্রয়োগ ক্ষমতার নিরবিচ্ছিন্ন সার্বিক মূল্যায়ণ করতে হবে।

প্রারম্ভিক স্তরের শিক্ষক/শিক্ষিকা এবং বিশেষ প্রশিক্ষণের (দূর শিক্ষা মাধ্যম) প্রশিক্ষণার্থী হিসাবে আপনার নতুন ভূমিকার কথা আপনি মনে রাখবেন— এই অনুরোধ।

আমাদের সার্বিক প্রচেষ্টা সফল করতেই হবে— এ আমাদের দৃঢ় অঙ্গীকার।

মার্চ, ২০১৫

অধ্যাপক ডঃ মানিক ভট্টাচার্য্য
সভাপতি
পশ্চিমবঙ্গ প্রাথমিক শিক্ষা পর্ষদ

Part A Elementary Studies

Unit I: Concept of Environment Studies

Structure :

1.1 Introduction

The importance of Environmental Science in the curricula of Primary and upper-Primary stage is very enlarging. It's aim is to make people well known to environment, who would be able to solve the different problems related to environment and able to restore the resources of the environment properly. This would be the essential factor of education in all stages.

1.2 Meaning of Environmental Sciences :

Primarily, the meaning of Environmental Sciences is the Social Science based on the intgration of Natural Science, History, Geography, Political Science and Economics. In other words, it can be said that, Environmental Science is the natural Sciences which is existed arround the children. This Science includes specially the knowledge of living and non-living -water, soil, Air, Earth, Sun, Moon, Plants, animals, natural environments and the knowledge about their interdependence. This Science is also includes the concepts about independence, tolerance, softness, nationality, human values etc.

This meaning of Science is also reflected in the child-centre Environmental Science of Primary and upper Primary stages prescribed by NCF - 2005.

1.3 : Integrated perspective from Science, Social Science and Environmental Education :

At present, Environmental Sciences (EVS) is very important in child education like language learning, Mathematics and Science learning. This EVS is very essential in developing Mental, Physical, Social, Knowledge, Natural and Geographical environment etc. Realising the importance of EVS, this can be divided into two parts - (i) Natural Science (ii) Social Science.

1.3.1 : Natural Science

The Science of the Natural Environment which is existed surrounding us, is called Natural Science, where this Natural Science is analysed, it can be known as -

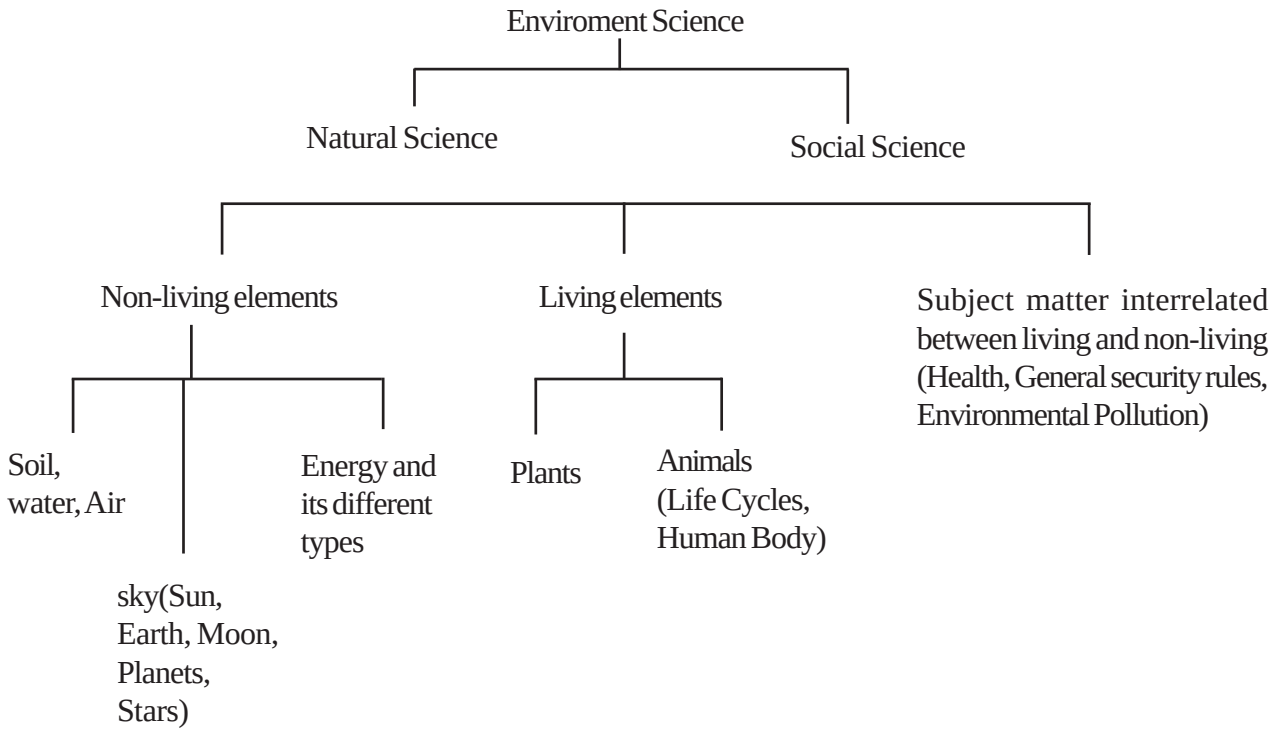
1. Non-living element :
    a) Soil, Water, Air
    b) Sky, Sun, Earth, Moon, Planets, Storm
    c) Energy and its classification
2. Living element :
    a) Plants
    b) Animals - Life cycles, Human body
3. Matter related with Living and non-living elements :
    a) Restoration of health
    b) General trafic rules
    c) Environmental pollution and its remedies.

1.3.2 : Social Science

Different and varieties of subjects of society are included in social science. For example, History, Geography, Political Science, Economics, sociology, Anthropology etc. may be considered. The knowledge and attitude of Social Science is essential for establishing peaceful and lawful society. The aims of curriculum of this Social Science should be made. The leaners conscious through proper quaries from different angles of known social realities. The reality about society should be developed within the learners. So, selection of content matters and their arrangements should be made in the text book in such a way, that the learners can get meaningful direction in all the elements of the subject matters. Although, sometimes it is seen, Social Science is treated as an unsuccessful subject. Not only that, less importance is given to it comparing the natural Science. But, it is not to be forgotton, social science is essential in attaining necessary Social, Cultural and analytical skills for matching with ever increasing and interrelated world. So, its values are deep and extended. It is also to be remembered that, like natural and Physical science, Social Science is equally important to learners. It is to be admitted that the contribution of scientific quaries, developing concept and creativity are important in this subject. Social Science Primarily, carries general responsibility on freedom, confidence, interrelated respect, dignity for varieties and deep feeling for human values. Also, the aims of Social-Science is to rouse rational moral and mental power within the learners, so that the learners are to be conscious about all types of loss and values destructing powers. This Social-Science is developed in combination of History, Geography, Political Science and Economics. Every subject has its own specific methods and contents. So, divisional lines may be drown in necessity. But in curriculum, specific subject thinking should be included in some cases, Where interelated relationship is established and a whole concept is developed.

1.3.3 : Sketch related to Environmental Sciences (EVS) :

Following sketch can be developed on EVS from the above mentioned discussion :



1.4 : Sum up :

Aims of Environmental Sciences in curriculum of Primary and upper Primary stage is to prepare cititens with perfect knowledge about environment. They will be able to know about the different problems of environment and to restore the resources of environment.

Primarily, the meaning of environmental Sciences is the Social Science developed on the combination of Natural Science, History, Geography, political Science, Economics. This Science includes — concept of living and non-living and the knowledge about their interrelationship. Non-living elements include water, Soil, Air. Earth, Sun, Moon etc. and living elements include plants and animals. This Science also includes another important matter — energy and its types.

learners determine different approaches for reaching different aims of EVS. The approaches of EVS are : observation, classification, comparison, inter-relationship, Solution of problems, communicational skills, formulation of hypotheses.

In NCERT curriculum, EVS for child ceutric education is developed in the light of NCF - 2005.

1.5 Exercise :

Answer the following questions (each of 50 words) :

a) What is the different of Environmental Science?

b) What are living element ?

c) What is the relationship between living and non-living elements ?

d) What is Natural Science ?

e) What are the subject matters of Social Science ?

1.6 Check your progress :

Write down the answers of the above mentioned questions in the following spaces :

a) _____

_____

b) _____

_____

c) _____

_____

d) _____

_____

e) _____

_____

Unit - 2
EVS Teaching - Learning Process

Structure :

2.1: Characteristics of children's ideas and how do children learn Science and Social Science.

2.1.1 : Charecteristics of children's ideas

2.1.2 : How children learn Science

2.1.3 : How children learn Social Science

2.1.4 : Summary

2.1.5 : Exercise

2.1.6 : Check up

2.1.1 : Characteristics of children's ideas :

Characteristics of children's ideas towards learning can be known from the research of Jean Piaget. Main idea of his research is — Information is the stimulii that creates, responses from outside. In this way, learning is the process of restoring special information through screening others. Some conclusions may be drown in the screening process —

- The information, which we receive, are not same when restore in the memory.
- Main structure of retained information remains undisturbed, but unnecessary parts are omitted.
- If other similar information is retained previously, then this old information is recalled when the new information is recalled.
- The new information is always digested in the light of old one.

Piaget has classified four processes at which we retain information from birth. Although the four processes are inter-related, yet, one process is better then the other. The stage are —

a) Sensori - motor stage

b) Pre - operational stage

c) Concrete operational stage

d) Formal operational stage

a) Sensori - motor stage :

Children only learn through this method from birth to two years of age. Here two factors are mentioned. First factor is the sensation which means, the children sees by eyes, hear by ear, take taste — by tongue, take smell

by nose, get sense by touch and form scheme about the animals and bodies that are surrouned around them. A tomato is red, round, smooth, sour and taste. These characteristics are closed to-gather to form schema about tomato.

Second factor is the movement, which means the concept that is formed by movement of hand and legs etc. Tomato is round, but it can not be realised only by eyes, whenever this tomato is hold by hand, the roundness of the tomato can be perceived even the eyes keeping closed. The movement of fingers of hand and the sight by eyes, these two experiences form schema of the Tomato. For this reason, This stage is also called sensory-motor stage.

Piaget has given long and complex explaination about the schema formation of the children and this stage has been divided into some sub-stages. But these sub-stages are not necessary in this context. In this age group, children do not come to the school. Only some matters are to be remembered for this stage.

- The children of this age group be given opportunities of handling dolls of different colours and sizes freely.
- Opportunities be given for free movement of the dhildren.
- Opportunities be given to see animals, plants and other bodies instead of seeing pictures.

b) Pre-operational Stages:

Second stage is Pre-operational stage. This stage exists from 2 years to to 6 years. In this stages new operation is started along with sensori-motor stage. Here the meaning of operation is mainly mental operation. In this stage mental image is mainly formed. Here, the children can speak and their language development becomes prominent. So, the image of schema formed earlier is enlarged with new information. But, the children at this stage can not judge the outer world by logic and new information received like the elders. Some characteristics of their thinking are given below :

- At the first time the children separate the real world from their imaginary world.
- At this stage, dolls, plants, animals etc of the surrounding areas becomes all living elements.
- At this stage, their logics are their own. For example, morning comes after night due to Bird's noise.
- The concept of big and small, tall and short, etc is developed by a single information. Example, a person is long so he is aged. The man having grey hairs, is grandfather.
- At this stage self-centric thought becomes prominent. Here, the children think that every incident is happened around them. Different types of thoughts are always used.
- Their thinking is unidirectional. They call 'B' is greater than A, but can not assure reversely 'A' is smaller than 'B'.
- Some subjects matter can be used by them in the field of education.
- Returning from Nursery or Kindergarden School, they love playing school type activities following their teachers.

- During playing they can imitate real incidents/situations in various ways. Example, they pretend eating or sleeping.
- They possess of drawing pictures.
- Language is their carrier of thinking. Whatever they do or think, they do with speaking.
- They try to draw mental image in all cases.

For this reason, bright pictures, rhymes with dance and music, new information through recitation etc. are always fruitful. Also, it is essential to get previlages for receiving experiences of sensori -motor stage.

c) Concrete Operational Stage :

This is third stage, its duration is 7-11 years. In this period, although the children's mental operation is not logic oriented, yet its foundation is prepared. They learn to classify. They can understand the characteristics on which the classifications are made. With this they gradually understand, one element can be classified in different systems with different characteristics. Example, one person may be one's father, but he may be another's brother in this period, concept about number, systematic placement of numbers for calculation, addition and subtraction of numbers can be learnt by practical situation. For this reason, Primary rules, addition, subtraction, multiplication and divison are taught to the children in this period (Primary School Stage).

Mental image is also formed about space. So, some local geographical learnings are also essential.

Whatever they learn or taught to them, initially there should be some concrete or real forms. From real experience, their mental images are formed. For this reason, in case of teaching addition or substraction, marbles or like materials are used instead of numbers. They can understand between part or whole matters and when two or three parts are added to form a whole thing, they can understand.

Some rules are to be followed by the Primary teachers for teaching the students in a easier fruitful way.

- ☐ Students' personal experinece should be used as far as possible.
- ☐ It is easier to teach from real experience instead of books.
- ☐ Formation of Schema is extended from real to abstract and from mental image.
- ☐ Students are to be enthusiased for preparing classification. This classifications help in the development of logic in various ways.
- ☐ Geographical attitudes are taught from their location of villages and Anchals etc. In this way, spatial ideas and concepts are formed.
- ☐ It is essential to teach the students by integrating different elements and subjects.
- ☐ It is very useful to enthusiase instead of teaching.
- ☐ It is essential to enthusiase in learning by experimentation or collecting information.

d) Formal Operational Stage :

This is the fourth stage of Piaget's theory. This stage starts from 11-12 years of age and the development continues through the whole adolescence Period. In this period, the boys and girls becomes habituated wholly

in logical learning. If, the learning of the previous three stage, are done properly, then they are able to get experience through analytical judging and varifying information is possible. For this reason, after class VII, more abstract thinking, logic and analytical matters are included in the curriculum. Example - formulas of Algebra, the proof of Geometrical theorems, asthetic sense of poems etc. are included in the curriculum.

Check your Progress :

Direction : a) Write your answer on the specified spaces.

b) Compare your writings with the writings of the specific unit

1. What is Schema ?

_____

_____

_____

2. Write four stage according to Piaget.

_____

_____

_____

3. What do you mean by disegtion of information ?

_____

_____

_____

4. In which stage the characteristics of concrete to abstract exist ?

_____

_____

_____

2.1.2 : How children learn Science :

Initial Science learning of children begins in the natural circumtances. The children, whatever, they learn by doing experiment, that would be more effective in future . They would gather new experiences by interacting, identifying the matter which are surrounding about them. For this, the teachers would help them. Also, the young boys and girls of the localities live together with the children in closed manner. So, in Primary Schools, the subject matters of Science (EVS) are selected from the environment. For this reason this Science is called the 'Environmental Studies'.

The teacher should do the following works for fruitful teaching of the students in the Primary level :

a) Teacher have to show the subject matters of EVS during teaching - learning of the students in the class room. They will acquint the subject matter with the students.

b) To enhancing observational skill, the teacher will ask the students on the matters brought in the classroom. Teacher will also look to the matter in forming inference.

c) Teacher will ask the students to collect various plants, flowers, fruits etc. The collected material, would be arranged in a room of the school building and would show them whenever needed.

d) Teacher will go outside along with the students regularly and acquint them with the different objects of the nature.

e) Teacher will attend the Science fairs organised locally with the students and help them in getting knowledge about the different scientific matters.

f) Teacher will arrange Birth days of renound scientists. In this way the teacher will help the students in learning EVS.

2.1.3 : How children learn Social Science :

Primarily, it is to be known about Social Science and subject matter of Social Science. In short, specific knowledge about Society is the Social Science. In other way, for living in a Society, it is essential to know about various of people, their clothes, behaviour etc. These information can be collected from History, Geography, Political Science, Economics etc. Now, it is to be seen that how the children will learn from these book, specially from History and Geography.

Firstly, for learning History, the children should be acquainted with the people of different places. Their clothes, domestic places, food habit etc. should be known separately for these cases, the teacher will help the students. Also, they will help the students in knowing the civilisation of mankind from the initial stage to the present stage by means of maps, pictures, handwriting etc.

Secondly, students will learn about Geography by means of globe, maps, documentary films etc. Teachers of the school will help the students in this matter. They will teach about rivers, hills, mountains desert, Plateau etc by maps, documents etc.

In this way teacher will teach about political science, Economics by giving charts, document etc.

2.1.4 : Summary :

From Piaget's theory, it is known how the children learn and what are the charecteristics of their concept formation. For this, there are four parts which are interelated. For learning Science and Social Science, these theories of Piagets are very important, but, teachers have to help the student in proper way. In case of Science, they will help them both inside and outside of classroom. Also in case of Social Science, the teacher will help them similarly. In this connection it is said that, there are vital role of children's parents and Social institutions. Every member of the society has a duty to help the children in gaining knowledge, concept, skills of Science and Social Science i.e. Environment Sciences.

2.1.5 : Exercise :

Answer the following questions (each of 50 words)

a) What do you mean by children's concept ?

b) What is Science ?

c) What is Social Science ?

d) How correlation between Science and Social Science can be done ?

2.1.6 : Check your Knowledge :

Answer the above mentioned question and check your knowledge with the writings of text-book.

a) _____

_____

b) _____

_____

c) _____

_____

d) _____

_____

2.2 : Teaching-Learning of Environmental Studies — Activities

2.2.1 Story - telling

2.2.2 Drawing and Painting

2.2.3 Dance

2.2.4 Theatre

2.2.5 Music

2.2.6 Craft

2.2.7 Discussion

2.2.8 Field Visit

2.2.9 Project Work

2.2.10 Experimentation

2.2.11 Let us Sum up

2.2.12 Exercise

2.2.13 Hint answer to check your progress.

2.2.1 : Story-telling Method

One of the verbal techniques is story-telling. Narrating Environment studies through story is a very good method of teaching at the primary level. Naturally all nof us, specially children love to the stories, children will imagine the world of nature, as well as their environment and sport relating those events with their real life. Gradually they will learn the truth of their surrounding as well as of the whole world, and gradually they will develop love and interest toward evs. The stories can be of differentb types — voyage, natural calamities story of priitive people, story of wild animals etc.

In order to succed story-telling method, the teacher can follow certain techniques i.e. that is language of the stories and the art of the presenting the matter, that should be attractive and the sitting arrangement of the children must be closer with the teacher in the form of semi-circle.

Here the following decisions of NCF-2005, the importance is given on the following matters in EVS —

a) Family and friend

b) Food and nutrition

c) Home

d) Water

e) Travelling

Characteristics of story-telling Method :—

a) Learners will sit on the floor making semi-circle formalities and teacher will sit in the middle position, so that the mental difference among them will be minimised.

b) Some LTM may arrange in need.

c) At the presentation stage, for the clear conception of the subject matter to the learners — the clear voice, correct pronounciation and attractive gesture and posture of the teacher is needed.

d) In the preparation stage, the teacher should take care to make the subject matter of the story of evs as real.

Advantage of story-telling.

a) In this method, it is very easy to make the learners interested.

b) As the close proximity of teacher and taught present in this method, so the teacher comes to know the advantages, disadvantages and understanding level of that group of learners.

2.2.2 : Drawing and Painting :

For drawing pictures, basic concept of drawing is necessary. Without clear conception of basic knowledge, it is unthinkable to draw pictures. The following four concepts are necessary for drawing :—

a) Scale and Proportion

b) Perspective

c) Light and shade

d) Composition

2.2.3 : Necessity of Dancing in primary Education.

The main medium of expansion of primary education is the children. The delightful teaching which makes an easy and necessary bridge between those children and their learning. One of the ingredients of this delightful teaching is music (song, musical instrument and dancing). Among those we will discuss about dancing. All children are extremely eage and like to enjoy the novelty of teaching method. To avoid the monotonous learning the cultural programme creates the new environment which touches their soft mind and makes them delightful. Dancing is the part of this programme. Mental development of hthe mind of those children through this art are as follows :—

1. Dancing creates pure pleasure, when any child perform dance wearing beautiful costume and make up then everybody becomes glad.
2. When performing this art of dancing it is nacessary to wave the different limbs, through which the physical exercise is done unconsciously, which is the extra benefit for the health of the children.
3. As the types of dances differs from one area to another, so by learning this art of dancing a clear conception develops about the nature, the man and his culture of different districts as well as different `stale of our country.
4. When anybody performs a dance with a song then she expresses their movements following the sense or meaning of that song, which results the literature development.
5. Some dances offer in devotion to god other than this some songs on worship or prayer, importance is given on divinity and express the movements accordingly. Through this spiritualism develops in them easily.
6. As there is an important role of musical time or measure is required dancing so at the time of teaching this subject the help of mathematics is nacessary. Thus the mathematical skills develops easily.

2.2.4 : The application of drama in Primary Education.

The selection of drama is necessary before it is staged. Audio-play may perform. Specially minimum make up and dress should be use in a play. For selection of a drama, some important factors should be taken in mind. These are as follows :—

a) Some massage should be given in a drama.

b) No expensive drama should be performed.

c) Third theatre, open theatre based drama amy be selected.

d) A drama, consisting minimum character is good for selection.

e) Audio-drama may be selected.

f) Minimum costume and stage may be used.

It is desirable to select the drama following the above proposals. For example, the pleasantry of Robindranath Tagore's small drama is excellence, specially appropriate for schools and colleges.

2.2.5 : Suitable songs for primary schools

Prayer songs

- Janoganomano Adhinayaka
- Anandaloke Mangola loke

Seasonal songs

- Aeso hey Baisakh
- Megher kole rodh

Functional songs

- Dhano dhannye puspe vhara
- Othogo bharata Lakshmi

Variety songs

- Gram chada oie ranga matir path

1) What is songs ?
2) Brief history of song.
3) Different streams of Indian songs.
4) Biography of the write of the lyric poetry and his contribution in songs.
5) The musical instrumants used in songs.
6) Some musical lines of songs.
7) Folk songs of Bengal.
8) Some folk songs of India.
9) The aims of teaching songs.
10) The importance of songs in primary education
11) Some lists of songs.
12) Some of artists.

2.1.6 : Craft

The art craft is confined within colour, paper, canvas, brush, cotton, clay, wood, jute, board etc.

It is necessary to work hand in land. i.e. terakola, jute craft, painting.

2.2.7 : Discussion

Discussion is not any separate teaching method. Learner may exchange their information and opinions among themselves in any situations even before the teachers in the classroom. But when a group of learners present a motivated and planned subject matter before others along with their own views, experiences and informations serially, then some new informations comes out, and this process is called discussion. Generally the teacher starts in this process and encourage the learners to participate without hesitation and make them to speak out in a disciplined manner. Lastly the teacher helps them to prepare the summary of the discussed topic.

- There are many advantages of this process of class teaching. For example :
- Language skill of the learner develop
- The skills to convey own feelings and experiences to others' development.
- Hesitation and stupidily minimise.
- The skillness exhanced as listener.
- Patience and sense of discipline develop.
- Learning become easy and normal.
- The skills for own knowledge development and make it share with others proceeds to social development.

2.2.8 : Local Field Study

One of the methods of experimental learning and teaching is Local Field Study. Here the EVS laboratory is the atmosphere outside the class-room. In primary education, learners from class I - III generally do their open-air classes ouyside their class-room but within the school campus but those from class IV -VIII generally lead out side the school campass but nearly areas of the school with the leadership of numbers of teachers and non-teaching staff. In a result the learners get oppertunity to observe and discuss among themselves with the help of their teachers about the different ingredients of EVS — like non-living 2 living, the sky, the man and his dress, local water resource/agricultural resource/mineral resource — which one is present in their local areas and come to knew some new informations and develop new concepts. from this they may come to a conclusion.

These are three steps in the Local Field Study these are as follows :—

a) Pre - Field

b) Field - Work

c) Post - Field

Advantages of Local Field Study in the teaching of EVS in primary education.

a) The development of practical knowledge of the learners.

b) As the learners get opportunity to face the real life, so the growth and development of their knowledge of outer world also develop.

c) Learners become science minded.

d) The curiosity about subject is transferred into interest.

e) Monotonous situation of class-room is changed into lifeful environment and makes them interested in learning.

Importance

a) The obsevation skill of the learners are developed.

b) Co-operation, self-dependence, responsibility etc. are developed among the learners.

c) Practical knowledge about subject matter is developed.

d) The little problems which they face during Field-Study, they can solve those with their common-sense.

e) This experiences becomes helpful at the time of decision making individually in future.

f) With the physical development, mental and social development alsotake place.

2.2.9 : Project Work

Doing project work as a part of teaching-learning process is not new. Project is the learning through a well-planned and well organized scheme of actions in which the students directly observe and collect information in groups. Kilpatrick, an eminent scientist, is considered to be the father of this method. However traditional project method is useless for children of primary stage you may apply the project method in primary schools if you are aware of project work suitable for the primary level of our country.

Project Planning

The organising of the project and related work should be planned in such a way that the students will be able to work for the fulfilment of predetermined objectives.

Objectives of project

First it has to be determined what the objectives of a project are. If the project in on any topic which is included in the curriculum then one must determine the particular abilities, skill and information that the students will be able to acquire through the project.

Team building for projects

If the project is big then that must be subdivided into segments and divide the whole class into small groups, giving responsibility of each group. In this way all the students of the class can be involved in the project. For a instance, projects is on environmental education or regional bio-diversity.

The nature of information and methods of data collection

One has to determine the types of information/data needed for particular project and the ways by which that can be collected. For instance, different groups of students may collect information on birds, insects, aquatic animals etc. in a project on regional bio-diversity. Before that they must decide to collect data about the name of the creature, its description and natural habit. However they may also decide to interview experienced people for data collection along with observation.

Data analysis

They must assess the findings and the probable gaps on analysis the collected data.

Drawing inference

A list must be prepared about the inferences drown from data analysis.

To prepare the written report of the project

The last phase of the job is to prepare a group report based on the collected data, their analysis and results. In this phase, teachers' help may be required.

It should be kept in mind that the little children can retain in their memory as much as possible they have observed, it is possible for them to write the written report based on their observation. So, report should be prepared accordingly.

Learning by project method

learners can learn fast through direct experience and observation by this project method. So the skills of observation and decision making of the learners are developed. Their motivation and self confidence develop in them and group integration becomes good.

2.2.10 : Experimentation

In this guidance, generally inductive, learner centric and activity based methods are included. These are as follows :—

a) Educational Tour

b) Nature Observation

c) Local study in different local societies, institutions or projects, nearly to the school.

d) To organize work-shops on different problems of History, Geography, Science, Literature etc.

Check your progress

Direction : a) Write your answer in the given line below

b) Compare your answer with that of given at the end of the unit.

1. Discuss the role of story telling method in the field of teaching in primary education.

2. Describe how Field Study helps the upper primary learners for learning EVS.

*b) Select any topic from VI - VII class and write your experience after organiging field study.

2.2.11 : Let us sum up

The different teaching-learning methods and techniques — which are followed in upper primary level are discussed in this part. Thes are as follows — story telling, drawing, dancing, drama, musyic, craft, local field study, project work, discussion, experimental method.

After learning the above methods teachers are requested to help their students so that they become benifited.

2.2.12 : Exercise

a) Describe with example the subject matters — which are possible to teach through story telling method.

b) Describe with definition the multipurpose application of songs in primary and upper primary level.

c) Describe the use of local study as essential part of EVS.

d) Describe the application of project method in EVS.

2.2.13 : Hint answer to check your progress

a) State how the teacher succeed by applying this method in any class.

2.3 Process skill in Science

2.3.1 : Introduction

2.3.2 : Process Skills

2.3.2.1 : Observation

2.3.2.2 : Classification

2.3.2.3 : Measuring

2.3.2.4 : Communicating

2.3.2.5 : Formulating question

2.3.2.6 : Experimenting

2.3.2.7 : Interpreting data and drawing intereuces

2.3.3 : Summary

2.3.4 : Exercise

2.3.5 : Check your Progress

2.3.1 : Introduction

Once upon a time Science was treated as extra-curricular subject in the curriculum of many countries. But in present age, it is treated as an essential subject in the school curriculum of almost all countries of the world. This has been done due to importance of Science in all aspects of life. So, to-day special attention is given in Science teaching throughout the world. For this reason following matters have been included in the objectives of Science teaching :

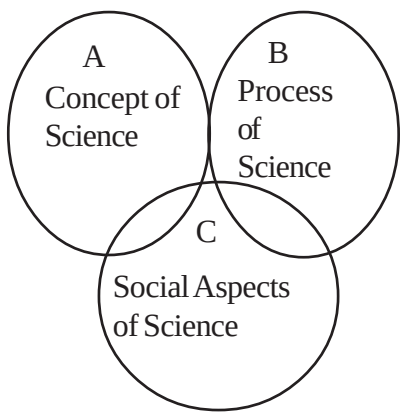
a) Concepts of Science

b) Process of Science

c) Social, moral and ethical aspects of Science.

These objectives are inter-related with one another.

Diagrammatic presentation is given below :



Concepts of Science : It stands for a class of things, events, situations, or ideas.

Process of Science : It is the characteristics of the activities and scientists' methods of analysis.

Social aspects of Science : It is the relationship of Science with Society.

At present, the processes of Science are to be discussed.

2.3.2 : Process Skills :

This is the special objective of science teaching. In this aspect it is reflected the ways in which Scientists work. As a result the Scientists acquire new knowledges and the students collects those knowledge. So, the

processes of Science contribute much in learning of students. Thus, the students acquire different skills of Science.

The commission on Science education of the American association for the Advancement of Science (AAAS) has developed the following processes for the children of primary School on the besis of Science curriculum :

2.3.2.1 : Observation Process : It is the initial process which is applied by the Scientists or researchers in different ways. In addition to general experiences, some instruments are used in enhancing the scope of observation. For example, Microscope and Telescope are used in the process.

For collection of information, the observation process is performed on the basis of such information inferences are drawn. But, important factor for this is the collection of adequate information through right observation and the right observation is got on the basis of observer's experiences. As a result the incidents can be arranged systematically or the changes of the properties of different objects can be idenfied.

2.3.2.2 : Classifying Process : Classification is the grouping of objects or events. This can be done on the basis of established rules or schemes. Also this classification can be done by observation or some characteristics. The characteristics include colour, size, shape or any other specific qualities.

2.3.2.3 : Measuring Process : Students sometimes want to know about the length, the width, the weight of a body. This process is very important for classification process. By measuring the growth of a plant, a researcher can know the growth rate of the plant and can predictits growth in a specified time.

Our conception may be enhanced, whenever the measurement is done by instrument. Measurement is said to be quantitative observation that gives some result in different situations.

In short, measurement is helpful in following spaces :

a) For ordering objects :

b) For comparing length, area, volume and weight;

c) For standard units of measurements

d) For measuring indirect means.

2.3.2.4 : Communicating Process : Communication is a skill which needs sufficient, correct information. A student tries to think sufficiently for speaking, writing and drawing pictures. Similarly, communication is very necessary for complete data and its understanding. So, communication is necessary for,

a) Describing observations verbally.

b) Describing conditions under which observations have been made.

c) Recording observation in a systematic way.

d) Describing experimental procedures.

e) Using tables, graphs etc. and translating interpretation.

2.3.2.5 : Formulating questions process : The children are curious by nature and as soon as they observe something, represent in the form of question. As a result, experiment or work of seeking is done to know the answer. Questions may be said as problems that are to be solved. The process of solving problems lead the children in many ways and in this way process of science is made.

2.3.2.6 : Experimenting Process : Observation and measurement process help the children in describing any object or in explaining any situation. But these process do not help the children in knowing the future events. In other way it is said, observation, measurement Process do not help the experimentation. Experiment needs real observation.

Experiment is a performation or work that is performed on specific conditions for discovering unknown result or verifying any hypothesis, In general, any experiment is performed for getting adequate observation. In this process, there are some sub-processes :

a) Arranging apparatus to make observation,

b) Identifying observations,

c) Controlling different variables,

d) Identifying sources of experimental errors,

e) Describing limitations of an experiment,

f) Describing the limitations of experimental design

2.3.2.7 : Interpreting data and drawing inference process : There is no meaning of data, but their interpretation helps in developping some conclusions or generalisations. Analysis of data is always helpful in drawing inferences. The following sub-processes are related to these processes :

a) Selecting data for specific problems.

b) Processing data.

c) Explanation of graphs or table or taking inferences.

d) Writing limitations of inferences.

e) Extending inferences to formlate models.

f) Using inferences to suggest further observations.

2.3.3 : Summary :

Three main parts of Science objectives are;

a) Concepts of Sciences

b) Processes of Science

c) Social, moral and ethical aspects of Science.

The parts of Processes of Science are :

a) Observation Process

b) Classifying Process

c) Measuring Process

d) Communicating Process

e) Formulating question process

f) Experimenting process

g) Interpreting data and drawing inference process

These parts (Processes) are inter-related and each one is very important.

2.3.4 : Exercise :

Answer the following questions (each of 50 words) :

a) What do you mean by concept of Science ?

b) What are the process of Science ?

c) What is Socialism of Science ?

d) What do you mean by Observation Process ?

e) What is the relationship between Measuring Process and Classifying Process ?

f) What is the relationship between Question formalating Process and Experimenting Process ?

2.3.5 : Check your Progress :

Answer the questions of Art. 2.3.4 and check your Progress.

Hints : a) See Art. 2.3.1

b) See Art. 2.3.1

c) — f) See Art. 2.3.2

2.4. **Preparation of teaching aids in teaching - learning process**

2.4.1. Teaching Aids

2.4.2. Preparation of Teaching Aids, Principle of selection

2.4.3. Principles of use of teaching aid (TLM)

2.4.4. Need of TLM

2.4.5. Improvised TLM, its uses

2.4.6. Methods of preparation of above items.

2.4.7. Some improvised TLM

2.4.8. Educational values of improvised apparatus.

2.4.9. Let us sum up.

2.4.10 Exercise.

2.4.11. Hint answer to check your progress.

2.4 : Preparation of teaching aids in teaching-learning process

When a child comes in contact with nature, he/she learns many things, in nature. Nature has different rules and disciplines, obstruction and hazards, from which child hlearn many things. Child will gain experiences of plants, rivers, ponds birds, animals, fruits, flowers, sand, stone, houses etc. in nature. This experience will be child's first stage of learning. In this case nature will be the first teacher. From nature observation, different questiond will arise in child's mind. Child comes in contact with different types of objects in nature. So in case of science education the only one resource is the nature. This vast of resources are spread over the entire diversed earth. To use there resources in the field of science are the only expectation.

2.4.1 Teaching Aids

The materials which are used to make the learning subject perceptable by the senses and learning very easily, are called teaching aids.

Classification of teaching aids :

1) Readable : Newspapers, Text books, Science magazine etc.

2) Audio : Radio, Tape recorder, Mobile.

3) Visual : Model, Chart, Picture, Map, Specimen of real object etc.

4) Audio-visual : Film, T.V. Video, Mobile and computer.

2.4.2 Preparation of teaching Aid, Principle of Selection :

The disposed materials of the environment, the materials which are of no use, low cost materials are used to prepare teaching aids. The Principles of preparation of teaching aids are discussed below -

1) Environmental objects are to be used to prepare teaching aids as far as possible.

2) The construction of teaching aids should be easy and simple.

3) Teaching aids should be less gorgeous.

4) Teaching aid should be subject related.

5) Instead of using pictures, charts etc, real teaching aids should be used.

6) With the help of lessons, teaching aid, should be prepared.

7) The materials needed for the teaching aid preparation should be of low cost.

8) Complex teaching aids should not be selected.

2.4.3. Principles of use of teaching aid (TLM)

1) While using TA/TLM, learners should be familiarised with every part of the TA/TLM.

2) No of TA/TLM, more than actual need, should not be used.

3) TA/TLM, should be used with the help of learners.

4) After use, TA/TLM, should be preserved in a specific place.

5) It should be noted that on using TA/TLM, complications may not arise.

6) After use of one TA/TLM it has to be removed and then further process is to be proceeded.

2.4.4. Need of TA/TLM

1) In case of learning with TA/TLM, more senses are used and learning becomes easy and simple.
2) Learners' attention can be drawn very easily.
3) TA/TLM inspires the learners.
4) Learners' attention can be drawn very easily.
5) Many complex problems or concepts are made clear by the use of TA/TLM.
6) Learners' Acquired knowledge becomes realistic by the use of TA/TLM.
7) TA/TLM, makes learner more active, and collects more answers from the learners.
8) By the use of TA/TLM, learners get concrete concept of subject matter.
9) Brings variations in teaching and the monotany in teaching-learning is diminished.
10) Scientific and logical attitude grows on learners and they can draw wright conclusion.

2.4.5.(i) Improved TLM

In case of natural teaching, there is a need improvised TLM, improved apparatus and library. In our country, due to want of money, science education is not being improved. For this reason, in a country like ours, improvised TLM/apparatus have made importance. So, to overcome the want of costly apparatus, teachers and learners together may prepare different apparatus, models and other TLM, with the help of low cost raw materials.

The TLM (s) which the teachers and learners together prepare with the help of cheap and easily available materials are called improvised TLM or instruments.

2.4.5. (ii) Characteristics of improvised TLM :

1) The components of improvised TLM are available easily.
2) The principle of learning by doing is carried out
3) The apparatus/TLM are very simple as per the age of the learners.
4) Learners can easily identify and buy the raw materials.

2.4.6. Preparation process of improvised TLM

The preparation follows several steps. The steps are as follows—

1) The sources of raw materials are to be selected first.
2) The size, shape and construction of the improvised apparatus/TLM should be known previously.
3) The TLM should be capable of helping the learners to achieve the competencies.

2.4.7. Some improvised TLM

(a) Preparation of simple Balance :

Two same size lids of babyfood container are to be taken and at equal distance in circumference, three wholes (in each lid) are to make and three cotton or nylon threads not same size are to be tied in the wholes and a cylindrical wooden pipe is to be taken and a strong thread to be tied in the middle of the pipe and the two lids are to be hanged at the two side of the pipe. This will work as a simple balance by taking weight on one lid and things on the other lid.

2.4.8. Educational Values of improvized apparatus

1) Helps in developing thinking power in learners.
2) The science teaching of a school becomes self sufficient with the help of improvised apparatus/TLM.
3) Teaching by prearing apparatus/TLM, helps in developing scientific attitude in learners. For this, the principle of education, learning by doing becomes feasible.
4) As the learners prepare the TLM by their own hand, their construction and creative ability is developed.
5) The qualities like self confidence, self dependence etc are inculcated in learners.
6) As the teachers as well as the learners become active, a good relationship develops among them.
7) As the learners work together, a co-operative attitude is developed in them.

Check your progress :

Direction a) Write your answer in the given space.

b) Compare your answer with the hint answers given at the end.

1. Describe the importance of the uses of TLM in Primary education mentioning the class. (with at least two examples)

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2. Describe how self made TLM be used in classroom for teaching EVS in primary education.

2.4.9. Let us sum up

In EVS, the classification of the uses of TLM, its preparation, Principles of selection, principles of uses, importance everything is discussed. in addition, how the teachers cross prepare these in low cost, that is mentioned. So, the learners might be interested to prepare these by their own.

2.4.10. Exercise

Answer the following questions within 50 words :—

a) What are the objectives for using TLM?

b) Classify TLM and give examples following the syllabus of primary stage.

c) Explain, how much important of is the application of TLM in teaching EVS.

2.4.11. Hint answer to check your progress.

1. Write the answer from your own experience.
2. Select two TLM — which can be prepared easily and then describe its application in classroom.

2.5. **Integrating the teaching of EVS with other subjects.**

2.5.1 Definition

2.5.2 Advantages of integrating

2.5.3 Natural Environment

2.5.4 Man and environment

2.5.5 Let us sum up

2.5.6 Exercise.

2.5.7 Hint answer to check your progress.

2.5.1 Definition

The education of Twenty first century is based on integration. Integration is the connection of life with the changing progressive course. Integration creates opportunity for self-expression and self-preservation. The main concern of integration is to create unity in diversity.

Integration is considered an important technique of instruction in education. It is trying out different means to achieve a desired end. That means finding out ceonceptual unity in all subjects and thereby enriching one self.

The rote of teacher in intergrated education is presentation of a well knit and comprehensive experience before his/her students.

2.5.2 Advantages of integrating :

1. It accelerates the process of learning by the use of critical thinking and helps to conceptualize abstract knowledge,
2. It improves the faculty of thinking among students so that they can take independent decisions in their future life.
3. It develops logical thinking and conscious percaptibility.
4. It frees the mind from superstitions and develops the power of evaluation of different situations according to necessities.

As EVS is a Bridge subject between Natural Science and social science so it is necessary to use Integrated method in teaching-learning of EVS. Now we may mainly classify EVS into two — (a) Natural Environment. (b) Man and Environment.

2.5.3.(1) Natural Environment

(a) Living element — Fungus, bacteria, fish, frog, worms and insects, plants etc.

(b) Non-living elements — Light water, different gas, soil, temperature etc.

(c) The natural environment of ponds or takes are formed in this way — soil + water + liquidified gas + acquatic plant + acquatic animal.

2.5.4.(2) Man and Environment

a) Domesticate the wild — About ten thousand years ago, the wild animal was domesticated in the western Asia. Animal husbandry started after at Iraq, Iran, India, Pakistan etc and in different areas.

b) Development of agriculture — Man started agriculture in the fertilo alluvial soils of giver valley. But in the forest areas, when thum cultivation started, the balance of power of environment destroyed.

c) Environment and culture — Natural environment and human culture is closely inter related. For example — Keralian prefer coconut in their main food which a Bengali does not.

d) Environment and population — The growth of population influence on the natural environment. For extension of residential area and agricultural field, the reduction of the forest land takes place, gradual decreasing the forest product, the rate of population becomes high, gradualy decreasing the mineral resources the variety of living elements may be destroyed. The influence of population growth on social environment are — personal income of per head is low, there is nuample facilities of medical treatment in underdeveloped countries, most people are illiterate, refugee, dwelling house without sanitation etc.

Check your progress

Direction : a) Write your answer in the given space below.

b) Compare the answer hint given at the end.

1. Describe with example low integration is made in primary education teaching-learning

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2. Describe with example low integration is made between natural science and social science (at least two example)

2.5.5 Let us sum up

Though in the School, the different subject are taught individually, 0but they are all inter-related. So, it logical to teach the students following the integrated method.

In this part, the definition of integartion, its advantages and the different parts of EVS i.e. the Natural environment and man and environment — the discussion about the method mof integration of those are made.

2.5.6 Exercise

Write the answers of the following questions within 50 words.

a) What is integration ? define it.

b) How integration between environmental science and social science is done for teaching in the class room ?

c) Integrate with example the Natural environment and environmental science.

2.5.7 Hint Answer to check your progress -

a) Write your answer following the text books of class I or class II (W.B.B.P.E)

b) Answer with example following the factors which may integrate Natural Science with Social Science.

2.6 : **Planning for a learning - centred classroom :**

2.6.1 : Introduction

2.6.2 : Teacher's duty

2.6.3 : Characteristics of Learning centred Instruction

2.6.4 : Learning centred classroom

2.6.5 : Planning for Learning centred classroom

2.6.5.1 : Let the Learners talk and collaborate

2.6.5.2 : Make it real

2.6.5.4 : Error Correction

2.6.5.5 : Teacher's guide

2.6.5.6 : Learns' Procedural closer

2.6.6 : Summary

2.6.7 : Exercise

2.6.8 : Check your progress

2.6.1 Introduction

With the advent of prograssive education in the 19th century, some educators thought for replacing traditional approaches of education. They thought for classroom teaching as child-centric educatiion. John

Dewey, Jean Piaget and Lev Vygotsky are the propouder of this child - centric/student - centric learning. According to them, the students activity construct their own learning and their theory is named as constructivism.

T.M. Duffy and D.H. Jonassen, in the early 19905, said, in the learning - centres instruction, the main role is played by the students. They realise by their ownselves, collect knowledge and retain, whenever they get adequate environment. Teachers, in the bclass room, only possibly help the students.

2.6.2 : Teacher's duty :

Teacher's duty is discussed in three states :

a) Implimentatiion

b) Class room

c) Evaluation of learning — centred education.

a) Implementation : Application of learning — centred environment depends on :

- Learner depends on what matters for learning.
- How learning adopts learner's intelligence, emotion.
- What is the stage of learner's social need, co-operation, communication, fellow learner's approval.

A student - centred learning environment will be open, dynamic, trusting, respectful and promote children's subjective as well as objective learning styles. Here the learners can take their own conclusion.

b) Class room : Here, teacher's task is not to see how the learners, learn, yet the teacher can see how the learner's self - confidence, self-dependence etc. are enhanced and eager to read. As a result successful learning is happened.

In the class room, teacher will see, how students develop good relation with the teachers. This relation can be fruitful for class-room learning.

c) Evaluation of learning - centred education : In learning - centred class room the learners can take part for their evaluation. Its meaning is, the learners can assume how teaching demonstration can be performed. As a result, the development of learning can be occured.

2.6.3 : Characteristics of learning Instruction :

The characteristics of learning - centred Instruction (LCI) are :

- ☐ It is established on the theory of constructivism.
- ☐ It depends on communication.
- ☐ It is dependent on learners' experience and previous back ground.
- ☐ It is meaningful and relevant to the learners' live and goals.
- ☐ It maximises learner to learner interaction.

- ☐ It integrates a variety of skills.
- ☐ It integrates a variety learning styles.

2.6.4 : Learning — centred class :

The characteristics of the class are :

- ☐ It strugneus learner motivation.
- ☐ It builds learner-teacher relationship.
- ☐ It promotes discovery/active learning.
- ☐ Each learner is responsible for his own learning.

2.6.5 : Planning for learning centred class room :

It has six parts which are :

2.6.5.1 : Let the learner talk and collaborate :

The importance of the learning - centred instruction (LCI) is to create communication among the learners. This communication part is important in the field of Science, Mathematics or English. Adult learners become more profitable and enjoyable within per group.

2.6.5.2 : Make it real : Whatever teaching may be given, it is to be remembered that one condition of adult learning is, the subject matter should be adjustable with life styles, and at the same time, the subject matter should be realistic in nature. Example are, outside field trips, outside speakers.

2.6.5.3 : Teaching all learing styles : Regardless of culture, language, background, or curriculum of study, everyone has his own personal style. The three typical styles are visual, auditory and Kinesthetic. Brain receives information, if then processes, stores and utilities. Among these activities, one or more activities may be more effective.

2.6.5.4 : Error correction : For class room learning it is to be remembered what type of errors are important and what type of correction is necessary. For example, in case of Mathematics and History, immediate correction is necessary. On the otherhand if any error is not important, there is no need for correction. It correction is made in that cases, learners' despair may be grown which in turn lead slow learning.

It in any learning class, error become resistance to transformation of subject matter, the meaning is disturbed by the errors, knthen the learning should be repeated.

2.6.5.5 : Teacher's guide : It is seen in class room research that, teacher's role is important in the interaction of learners. In the experiment oriented schools, it is known from pair work study, the learners works jointly and the speed of this work becomes enhanced in the presence of Teachers. Learners then jointly stop talking or they feel, they will work for teachers.

2.6.5.6 : Learner's procedural closure : At the closure point, Learners' new learning is accepted which they will retain for long time. In the closure, the summary of the learners' learning is also given.

2.6.6 : Summary :

The foundation of learning centred classroom thought is the theory of Constructivism. The inventors of this theory are John Dewey, Jean Piaget, and Lev Vygotsky. In this thought, the traditional thought of learning has been replaced by new thought, where, in classroom, the learners will lead the learning process and the teachers will act as helper.

Here, the characteristics of learning - centred instruction (LCI) are discussed. With these, some information abont learning-centred class are given and teachers' duties are also discussed.

Overall, a planning for learning centred class is also given.There are six parts of this planning. The parts are :

a) Let the learner talk and collaborate

b) Make it real

c) Teaching all learning styles

d) Error correction

e) Teacher's guide

f) Learners' Procedural Closure

2.6.7 : Exercise :

Answer the following questions (each of 50 words) :

a) On which theory the learning - centred class room is developed ? What is the main theme of the theory ?

b) What is the Teacher's duty in learning - centred classroom ?

c) What are the characteristics of learning-central class room ?

d) What is the planning of learning - centred classroom ?

e) What are the main statements of error correction ?

f) What is the main idea of learners' procedural closure ?

2.6.8 : Check your Progress :

For checking your Progress, answer the above mentioned questions and compare the writing with the writings of the present unit.

a) _____

b) _____

c) _____

d) _____

e) _____

f) _____

2.7 : **Resources of Indoor and outdoor for Teaching-Learning Progcess**

2.7.1 : Introduction

2.7.2 : Indoor resources of classroom

2.7.3 : Outdoor resources of ckass room

2.7.3.1 : Community Resources; developing, maintaining

2.7.3.2 : Other sources

2.7.4 : Summary

2.7.5 : Exercise

2.7.6 : Check your progress

2.7.1 : Introduction :

In this unit different matters of Teaching-learning Process are discussed,. At present resources of out side and Inside classrooms are given importance. These resources make effective the teaching-Learning Process.

In the discussion of resources of Indoor class, the roles of Teaching - Learning materials are discussed.

On the other hand, community resources are discussed as outdoor resources. Except this, various organisation institutions of the Society may be discussed in the development of Teaching -Learning of Science. For example, Science clubs, Science Fairs, Gevernment & non-Government organisation et`c. may be discussed.

2.7.2 : Indoor Resources of classroom :

In teaching-Learning Process, Indoor Resources of class rooms ae mainly Teaching Aids (LTM).

According to their qualities, they are classified as

a) Visual Teaching Aids

b) Auditory Teaching Aids

c) Audio-Visual Teaching Aids.

a) Visual Teaching Aids (T.A.) :Includes chart, Pictures, models, maps, Boards etc. With the help of those T. A., the teachers will teach in the class room. The students will thus realise the subject matters easily and also the teachers will teach the students systemmatically.

b) Auditory T. A. :Includes tape recorders, Radius, Grama-phones etc. some times discussion on any subject matter can be recorded by the tape recorder or the speech of any scientists or students can be recorded. Then these recorded matters are displayed to the students whenever needed. In this way many new information can be get by the students and their interest is enhanced. The students, who can see in less quality, they become benefitted for this type of T.A. .

c) Audio-Visual Teaching Aids :This includes cinema, T.V., cassette etc. With these T.A., both visual and auditory action are performed simultaneously. So, acceptance of these type of T.A. are larger to the students and their interest and attention are indreased in large amount.

Some special attentions are to be given for use of those three types of T.A. which are :

a) The T.A. should be always related to subject matters taught to the students.

b) The T.A. should not be big or small.

c) The T.A. should be easily available.

d) Number of T.A. should be large in quantity and these should be of various types.

e) T.A. should be also in working condition.

f) T.A., if it is in model type, should be real replacement of the original thing, otherwise there may arise any type of misconception.

g) It T.A. be in the form of chart, then writings of the chart should be clear, so that it is clearly visible from a far distance.

2.7.3 : Outdoor resources of classroom :

As the role of LTM in Teaching - Learning Process is much, the role of outdoor resourcesin class room is also same, specially in the field of EVS, this role of outdoor resources is very important. In NCF - 2005 it is said that the teachers have to look to the matter students' learning. They have to see that the subject matters which are to be tayght to the students, should be relevant to the surrounding environment. So, in that case, outside resources becomes more acceptable for class room teaching-learning process.

In the present discussion, community resources are considered mainly in the Teaching-Learning process.

2.7.3.1 : Community Resources — developing, maintaining :

The meaning of the community is the group or race. The resource of community is the society Hall i.e. a Hall built for the various needs of the members of a Society. There are various activities performed in the Hall. It may be used for the various needs of the society and also be used for teaching - learning Process of the students.

So, how the Hall is used for the Teaching-Learning process, is to be discussed in the present topic. This discussion may be done in two ways —

a) developing the community Hall

b) maintaining the Community Hall

a) Developing the Community Hall :There are many Science resources arround the schools. For collection of these resources, communities help may be taken in low cost or no cost. There are various types of people in a community. They can help for collection of these materials. For example, Plants, Cultivation field, various beasts, Coral & Ponds, various flowers & fruits, vehicles, Buildings etc. Local maps, Sketchs, charts etc. may be got as resources.

The resources may be classified on on the following catagories on the basis of their sources.

i) Geographical environment — The sources are : Rain, Atmosphere, Forests, Sky, Dresses, Foods, Dwelling Places etc.

ii) Information published in newspapers — Flood occured in many places, Natural calamities, drought, Religious, functions, Safety rules etc.

iii) Video & Photograph — Real Pictures can be got from these resources.

iv) Maps and charts — Local maps or some information oriented charts are included in this category. Location of many places, institutions, organisations etc. may be known from local maps. Rainfall

Temperature etc. of those places may be known with the help of those charts.

v) Local information – Information about the people residing around the schools – for example, education, health, dwelling places etc. may be got.

b) Maintaining the Community Hall – It the resources are to be collected with the help of community, then special maintaining of the community is essential. For this maintaning, in one side the persons associated with the Hall have major function, on otherside, the teachers & the students of the school have to work simultaneously.

In the event of collection of the resources, the students may take the help of the persons attached with the Community Hall in the guidance of their teachers. For example, in the collection of maps and charts from the local administration, the persons attached to the said Hall may help the students. In this way information about local environment may be collected. Except this, for enhancing local aesthetic feature, for removing environmental pollution, materialisation of many projects, the members of the Hall may help in special manner. In this matter, the proper planning should be prepared by the teacher. The students may take help from the members of the Hall in the guidance of their teachers. In this way the outdoor classroom work is performed.

2.7.3.2 : Other sources : In Teaching-Learning Process, the role of community is prominent, but some Government and Non-Government organisation also help the process in various ways. The role of Gram Panchayets, Block Development offices are to be mentioned specially. Various projects are taken throught Gram Panchayet. When the students are associated with these projects, the entire works/projects becomes fruitful. Projects of planting, making roads, collecting water, removal of environmental pollution may be mentioned in this respect. Attaching with these projects, students' practical learning becomes effective in one hand, and in other hand, the development of the Society is performed. So, every school has duties to take such type of information and to make arrangement in attaching the students with these projects.

Like Gram Panchayets, Block development offices also take such type of projects and the schools may take steps as earlier.

2.7.4 : Summary :

In the discussion of Teaching-Learning process, the role of both indoor and out door classroom resources are mentioned.

Initially, LTM, as indoor resources are discussed. Their classification, function etc. are discussed step by step.

Then, the role of Community Hall is discussed as outdoor classroom resource.

At the end, the role of other resources, like Gram Panchayats, Block Development offices are discussed as outdoor classroom resources.

2.7.5: Exercise:

Answer the follwing questions (each of 50 words) :

a) What is the difference between indoor and outdoor resources of classroom?

b) What are the precautions of using indoor resources of classroom?

c) What are the role of Community as outdoor resource of classroom?

d) What is the role of Gram Panchayets in Teaching-Learning Process?

2.7.6. Check your progress :

Check your progress in answering the above mentioned questions and hence comparing the answers with the writings of the given hand book.

a) _____

b) _____

c) _____

d) _____

Unit - 3

Assessing EVS Teaching-Learing

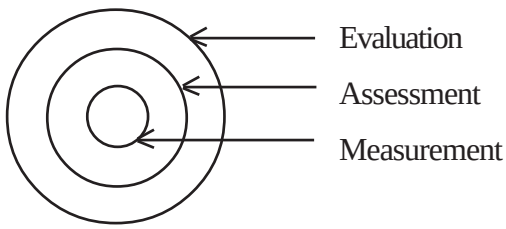
3.1 : Introduction :

The word Evaluation is important in modern education. Primarily, the meaning of the word is to evaluate the behavioural performance of a person. This behavioural performance is the development of person's knowledge, attitude, attention, interest, personality. Due to vast change in the field of education, the importance of evaluation has been increased and at the same time its complexisity has been developed. So, for simplicity, this evaluation process has been divided into three parts—a) measurement, b) Assessment c) Evaluation.

a) Measurement : This is the first stage of evaluation. In this stage, special characteristics of a person are measured separately.

b) Assessment : This is the second stage of evaluation. Its conception is greater than measurement. Here interpretation is made on the measured scores obtained in earlier stage. This stage is the preceeding stage of evaluation.

c) Evaluation : In this stage the conception about the development of the person's cognitive, mental, emotional, physical and allround features are got. At this stage, the information obtained from the Assessment stage is taken as final form. Three stage are shown in the picture :



So, the three stages are mathematically related as

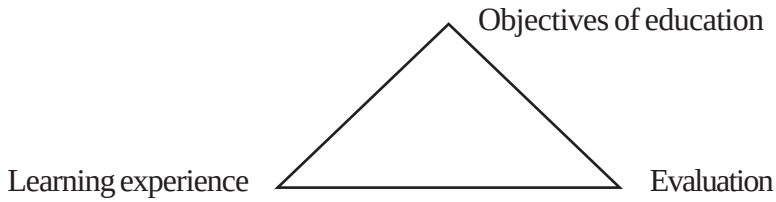
Evaluation = Measurement + Assessment

In EVS, Assessment is replaced instead of Evaluation, without considering the wider scope of evaluation.

3.2 : Different ways of Assessment/Evaluation :

Before knowing the techniques of Evaluation, it is better to know about the place of Evaluation in the field of Education.

According to Benjamin Bloom, objectives of education, learning experience and Evaluation — these three are interrelated. He has considered these factors as the three Apexes of a triangle, at the top apex 'Objectives of education' and 'Learning experience' and 'Evaluation' on the other two apexes. He has named the triangle as 'Triangle of Evaluation'.



Now let us discuss about 'the teachniques of Evaluation'

The techniques are special type of methods by which students' physical, mental, educational, social, emotional and personality are measured. According to the characteristics of those qulities, the techniques are classified into four categories—

i) Testing

ii) Observation

iii) Self Reporting

iv) Projective technique

i) Testing : According to Garrett: '' A test is merely a series of tasks which are used to measure a sample of a parson's behaviour at a time''.

So, in testing teaching, certain types of activities are used in the performance of eveluation.

(ii) Observation : After knowing the behaviour of any person, when efforts are made to know the person directly, the technique is known as 'observation'. In this method, a person in working stage, is observed to know his thought, skills, intelligence and other behaviour.

(iii) Self Reporting : In this method, a person expresses his behaviour or characteristics answering some questions by himself. In general, the questions are in the form of person's liking and dis-liking, fear, hope & aspiration, sexual affairs etc. With these answers, it is known how the student adjusts with the environment or needs and hence his attitude, interest, personality etc. are evaluated.

(iv) Projective Test : In this technique, some words, meaningless pictures, meaningful pictures, incomplete sentences are presented before a person. Then the person is asked to give reactions. After that, the reactions are measured to know his various characteristics.

3.3 : Continuous and comprehensive assessment :

In continuous comprehensive evaluation, students' continuous developments are continuously observed and recorded throughout the academic session. So, in new curriculum, Formative and Summative Evaluation are included.

Formative Evaluation : This type of evaluation happens both in inside and outside of classroom during learning period. For this evaluation, five indicators are considered. These indicator are used for students' comprehensive development. It is to be remembered that the indicators have been considered on the basis of national curriculum framework 2005, Right to Education 2009 and constructivist approach. Teachers will use these indicators both in inside and outside classroom during teaching-learning process.

The indicators are :

1. Participation
2. Questioning and Experimentation
3. Interpretation and application
4. Sympathy and Cooperation
5. Aesthetic and creative Expression

Summative : In new curriculum, three Summative Evaluations have been placed. First one, from first to second week of April, Second one, from last week of July to first week of August and lastly third one, from last week of November to first week of December have been arranged.

For Summative evaluation, two special things are to be kept in mind —

(i) In question papers, the philosophy of open-ended question framming works. (At least $^1/_3$ of the question should of this type)

(ii) Nature of questions should be of expressing analytic power and creative power of the students. Teachers should remember these thoughts. Except these, it is to be remmebered that students' retention level of the acquired knowledge should be measured.

- ☐ It is to be remembered that, although formative and summative evaluations are different, yet they are complementary to each other. Formative evaluation is diagnostic in nature and summative evaluation is judgemental in nature. So, it is completely unscientific to unite obtained grades or numbers of two types of evaluations.
- ☐ Specific Rubrics and Grades are given in the evaluation report card, so that the students can clear and transparent conception about themselves.
- ☐ Proper arrangements are to be maintained for examinees' teaching exercise and thereby for getting real learning.
- ☐ It is essential to determine teaching dis-abilities of the examiners

- ☐ It is helpful in determining Primary level teaching methods and Teaching Aids are to be made practical and appropriate to the children.
- ☐ It is helpful in the arrangement of Teaching Process.
- ☐ It is guided for remedial Teaching and evaluation.

3.4 : Preparation of tools for Teaching-Learning Process in the Local Context :

3.4.1 : Stages of constructing test items :

1. Content Analysis : For this, one subject unit is considered. Again unit is divided into sub-unit. This analysis is called content analysis.

Example :

Subject : Mathematics

Class : III

Unit : Determination of small and large numbers

Sub-Unit : (a) Arranging the number from larger to smaller.

(b) Finding largest and smallest numbers and their addition.

(c) solving real problems.

2. Writing Instructional objects: Generally for preparing Achievement Tests, cognitive domain and Psychomotor domain are consider. In these domains four objectives - knowledge (K), Understanding (U), Application(A) and Skill(S) are taken.

(In EVS, above mentioned four objectives are also considered.) Now, for each sub-unit, these objectives are selected. Sometimes, it is seen that there may be three instead of four.

3. Preparation of Blue Print — Table of specification :

After selecting objectives, Blue print is prepared on the basis of this blue Print, test items are prepared.

Before preparing Blue Print, Full marks of the test is considered. Let us take Full marks as 25. Now, it is to be decided how many test-items for K, U, A and S are to be selected. It is to be remembered that the Difficulty Value (D.V.) of 'K' would be higher than that of 'U' and D.V. of 'U' would be lower than 'A' and 'S'. Over all number of test-items for K, U, A and S will be selected on the basis of the class for which the test is to be prepared. In general, three types of test-items — Essay (E), short answer (SA) and Very Short Answer (VSA) are considered. It is also decided, how many marks are alloted for these three types of Test items (T.I). An example is given below :

Nature of Test Items	Alloted numbers
Essay Type (E)	7
Short Answer type (SA)	2
Very Short Answer type (VSA)	1

Another important decision in to taken by the experimentor, how many numbers are to be alloted for each sub-unit and how many number are to be alloted for each type T.I. For each case, ables are to be prepared which are called 'Table of specification'. The tables are as follows :

i) Weightage to instructional objectives :

Stage of objectives	Numbers	Percentage of Numbers
Knowledge (K)	4	16%
Understanding (U)	8	72%
Application (A)	6	24%
Skill (S)	7	28%

ii) Weightage to sub-units :

Sub-units	Numbers	Percentage of Numbers
Sub-unit - a	7	28%
Sub-unit - b	10	40%
Sub-unit - c	8	72%

iii) Weightage to Test-items (T.I.) :

Type of T.I.	Numbers	Percentage of Numbers
Essay type (E)	7	28%
Short Answer type (SA)	4	16%
Very short Answer type (VSA)	14	56%

On the basis of above mentioned three specification tables, following Blue Print is prepared :

BLUE - PRINT

Objectives Sub-units	Knowledge			Understanding			Application			Skill			Total Numbers
	E	SA	VSA	E	SA	VSA	E	SA	VSA	E	SA	VSA	
Sub-unit-a			(1) 1			(2) 4			(1) 2				7
Sub-unit-b			(3) 3							(1)7			10
Sub-unit-c				(2)4					(2)4				8
Total			4	4		4			6	7			25

N.B. : Number within brackets indicate number of Test-items and number outside brackets indicate total numbers allotted for this type of Test-items.

After preparing the Blue print, the experimenter is to prepare test paper on the besis of this (B.P.). One example is given below :

Test Paper : Full Marks :

Subject : Time :

General direction :

Direction :----- Group - A (V.S.A.)

Direction :----- Group - B (S.A.)

Direction :----- Group - C (E)

Direction :----------

Next step after Test Paper Preparation is to prepare scoring key.

For Very Short Answer Type T.I. the scoring key is prepared in the following manner :

Seaial Number of T.I.											
Answer											

For Short Answer and Essay type T.I. the Scheme is as follows :

Serial No. of T.I.	Probable Answer	Number Structure	Total Number

3.5 Summary : Here three matters — Measurement, Assessment and Evaluation are discussed and relative positions are shown in picture. In this unit, discussion is made assuring Evaluation and Assessment are identical. In this way, four techniques of Evaluation or Assessment — Testing, Observation, Self reporting & Projection are discussed.

After that discussions about continuous and comprehensive Assessment are given.

At the end, test tools are prepared for a subject.

3.6 : Exercise : Answer the following questions (each of 50 words)

a) What is the relation between measurement and Evaluation?

b) What do you mean by Evaluation Triangle?

c) What are the Techniques of Assessment?

d) What do you mean by continuous evaluation?

3.7 Check your Progress :

Check your Progress answering above mentioned questions and hence comparing with the writings of the present unit.

a) _____

b) _____

c) _____

d) _____

Part B
Unit - 1
Science in Elementary Curriculum

1.1 : Nature and Scope of Integrated Science

1.1.1 : Introduction

1.1.2. : Objectives

1.1.3 : Nature and Scope

1.1.3.1 : Meaning of Science

1.1.3.2 : Concept of Science

1.1.3.3 : How you will learn Science

1.1.3.4 : Scope of Science

1.1.3.5 : Summary

1.1.3.6. : Exercise

1.1.3.7 : Check your Progress

1.1.1 : Introduction : Science is an undivided part. To know the rules of the world, the exercise and application of intelligence is called Science. Science makes us to free from various religious or usual cultures. Science has two types of knowledges - dynamic and Statical. Dynamic knowledge is the true culture of the old and continuous quest for new truths and static knowledge is the established truth and invented information. The Aims of Science teaching is wide. Again. The aims of education is the all round development of the learners. So, to reach in the aims of education. The role of teachers as well as the role of students, guardians, Society are equally important. Throngh Science teaching, Students all round development - intellectual, Physical and mental developments are possible.

1.1.2 : Objectives : Through Science Teaching you will be able to -

(i) know about the Science,

(ii) write how the children would learn Science,

(iii) remember about the Scope and History of Science,

(iv) give consent about the place of science in the curriculum,

(v) help in constructing conception of science among the children.

1.3.1. : Meaning of Science : The meaning of, science is specific knowledge. But all Knowledges are not science. Science is the part of undivided knowledge. For knowing the rules of the world, the exercise and application of intelligence is called science.

According to webstar's Third New International Dictionary of English Language, " A branch of study that is connected with observation and classification of facts specially with quantitative formulation of verifiable genaral laws chiefly by induction and hypothesis.

Science is an experimental subject and so, it is very much objective than other subjects. Science is the inquiring of truth.

1.1.3.2 : Concept of Science : Conception of Science is spread over through experiment and verification and these conceptions can again create next experiment and verification, This means, science is the search of continuous knowledge.

From the definition of science, knowledge of science is of two types - (a) Dynamic knowledge (b) Statical knowledge.

1.1.3.3 : How you will learn science? : Initial science teaching of children begins in the field of nature. The children whatever they do experiment and verification by themselves and learn something, that will be very effective. The children will get new experiences from the environment surrounding themselves. Teachers will help them in getting these experiences.

1.1.3.4 : Scope of Science : From the knowledge of the environment, different theories of plants, animals and non-living and their application have been kindly discussed in science. Students' observational power has been developed about the well known plants and animals, specially about their size, nature, dwelling place etc. Science teaching has been also developed so that students themselves and social improvement be done properly.

For the healthy life style of the students, proper conception has been given about the harmful creatures, various disease created animals, virus etc. Science also gives the students about the knowelege of recyclable resources and their proper use.

1.1.3.5 Summary : Children always acquire knowledge. All knowledges are not science. Science is the specific part of - undivided knowledge. It is the exercised need of Intelligence. It is not necessary to know something for acquiring knowledge. This acquired knowledge should be applied in the practical life of self and society. And by doing this various problems of life can be solved.

Main theme of science is to develop tolerance on the consent of others, to express own errors in need and to avoid prejudices in reaching right infereces on the basis of experiment and proof.

The main function of child learning is to get direct experiences or observation. For teaching - learning process, the text books only acts as helper, although there is an important role of the text books in the fulfillment of aims of Education. They carry proper guide lines in getting the learning experiences among the students. Like in different subjects in science, text books play important roles nothing can replace them.

1.1.3.6 : Excrcise :

Answer the following questions (each of 50 words) :

1. How the children learn science in class I and II ?

2. What are the external characteristics of text books ?

3. What is Science ?

1.1.3.7 : Check your Progress :

Cheek your Progress giving answers for the above mentioned questions and cheeking the writings of the present unit.

1. _____
2. _____
3. _____

Unit - 1

1.2 : Aims and Object of Teaching Science

1.2.1 Introduction

Though it is a normal practice to use the words aims and objectives Synonymously, there is a difference between these two. Aims have a broader sense than objectives. Aims are considered in general form, where as objectives are considerd in trem of human behaviour. The main characteristic of objectives is its specificity. Specificity is also a character of aims selection, but all the times this character can be maintioned. Objectives are more changable than aims

1.2.2 Objectives

After completion of this unit you will be able to -

(a) State about the utilitarian values of Science.

(b) State about the aims of science teaching.

(c) Write the objectives of Science teaching.

(d) differentiate between aims and objective.

1.2.3 Aims of Science teaching

At very stage of science education, to make science teaching most successful, teacher has to know the aims and objectives of science teaching, though aims and objectives are sometimes used to mean same sense there is a sharp difference between these two. Aims are broader than objective. That is, objectivs are more specific than aims.

It has to be kept in mind that -

(a) teaching is duly not only to confine the learners in the class room but also to help them to build up their future life and satisfy their mental needs.

(b) Teachers should have a positive attitude inculcating learners roles, in achiving their expected competencies.

(c) The objectives of science teaching should have vision which will accelerate the means of attaining goal achievement of the learners.

According to NCERT, the following are the aims of lower primary stage from class I to class IV.

1. At this stage the main aim is to familiarize the learners with the nature. So that they can understand their environment properly,

2. To develop a general concept of helth education in learners and make them habituated in health living.

3. To help the learners in developing thinking power logically.

4. To help the learners in developing observation ability.

5. To make them habituated in working neatyly and nicely.

6. To encourage the learners in reading the life history of scientists.

1.2.4 Utilitarian aim

By utilitarian aim, we mean how does science help us directly in our daily life. Science in an important in individual and social security, in improving the standard of individual, socity and envoronment, in creating resources, in economic improvment and in adjustment with environment.

The important contributions of Science are -

(a) Industry :- For the improvment of industries, applications of knowledge of enginering, machines, Chemistry etc. have become possible.

(b) Agriculture :- For the advencement of agriculture, like deep tubewell, seed of higher standard, manures fartilisers, pesticides, Tracter, etc, the problem of food has been solved to a great extent.

(c) Normal education and vocational education :-

In mordan days, an important and very useful contribution of science is computer. people are being benifited much by using computer and internet in selling their professions.

(d) Medical treatment :- In case of medical treatment use of morden technology has increased the life span of people by creating healthy environment, digonosing different discases correctly etc.

(e) Energy :- Men have succeeded in utilising different types of energy.

(f) Transport and Communication :- Now - a- days rapid communication, rapid exchange of message etc, have become possible due to the improved transport and communication system.

(g) Luxurious materials for use of family lives : Different types of gadgets are being used in families which are the gift of science. They have made the human life very easy and comfortable.

Thus Utilitarian Aim is so extended that it cannot be stated in a short form.

1.2.5 Objectives of Science teaching : (Objective are to be stated in behavioural term)

The behavioural change which occur in the behaviour of the learner at the and of learning any subject matter of science, is called the objectives of science teaching. But the expansive subjective matter of science, is called the objectives of science teaching. But the expansive subjective matter creates uncertainity and un specificity in case of measurment of aims. For a smooth solution of the problem a trial to make aims more

specific and realistic, the concept of behaviour of the learners at the end of learning any subject matter of science, is called the objective of sciences of science teaching.The concept of behavional objective is based on psychological principle of learning process.

According to Bloom, human behaviours are controlled by three types of domains.

(1) Cognitive (2) Affective (3) Conative. Based on these types of behaviours, four types of behaviounal objectives have been.

Introduced in education they are -

1. Knowledge based objective.

2. understanding based objective.

3. Application based objective.

4. skill based objective.

1. Knowledge based objective :

The learners will be able to remember and recognise the learnt subject matter at the attaimment of this type of objective for example - (a) Learner will be able to state the relationship between plants and animals. (b) Learners will be able to recognise different plants and animals etc.

2. understanding based objective :

Learners will be able to identify, classify, differentiate, give example, explain the cause - effect relationship, Compare etc, on fulfilment of this type of objectives. for example-

a. They will be able to identify, the objects of environment on the basis of their charactaistics.

b. They will be able to compare and difference between plants and animals.

c. They will be able to explain the cause of natural facts.

3. Application based objective :

Learners will be able to apply their learnt knowledge in new situations on fulfilment of this types of objectives of science teaching.

Example -

a. They will be able to take interest in plantation, to overcome the problem arising from oxiygen.

b. They will be able to apply the knowledge of formation of good habits, for healthy living their own lives.

c. They will be able to apply the knowledge of science in agriculture, live-stock farming and human life.

4. skill based objective :

Learners will be able to draw, sketch, build, experiment, make list, take right decision etc. after attainment of these types of objective of science teaching example-

a. They will be able to work on their own.

b. They will be able to make different instrument, models, TLMS etc.

c. They will be able to expriment on natural facts and take correct decision.

1.2.6 Bloom's taxonomy

We have alrady learnt that bloom divided the behavioual objective in there parts. They are 1. Cognative, 2. Affective, 3. conative, our behaviours are controlled by these three parts. He subdivided the ocgnitive stage in six parts. The classification are as follows :

1. Cognitive stage -

a. Knowledge - To remember the subject, matter to recognise different incidents etc.

b. Understanding / Comprehension - Explanation of any Scientific fact, to find out relationship etc.

c. Application- To apply any learnt matter in new situations

d. Analysis - It refers to this ability to breakup context material in to its complement parts so that its organisational structure may be understood. Learning outcome here represent a higher intellectual level than understanding / comprehension and application because they require an under standing of both the content and the structural term of material.

Example - i) Content analysis, ii) Analysis of relationship etc.

e) Synthesis - Synthesis refers to the ability to put parts together to from a new whole. Learning - outcome in the area stress creative behaviours with major emphasis on the formulation of new patterns or structures.

f) Evalution - Evalution in concerned with the ability to judge the value or material for a given purpose.

2. Affective stage : Affective domain includes those objectives which are concerned with change of interest, attitudes and values and the development of appreciation and adjustment. On developing affective domain in learners, their attitude becomes Scientific. They become Science Concious, They accept the value of science and they prefer for a Velue of Science.

3. Conative / physhomotor (domain) Stage:

It includes those objective, which are concerned with manual and motor skill. On attainment of this stage, learners do any work correctly as per as possible.

Cheek your progress

1. What are objectives?

.....

.....

.....

2. What are the four types of objectives of Science teaching?

.....

.....

.....

3. Write two differences between aims and objectives.

.....

.....

.....

1.2.7 Let us sum up.

Aims are the directions given to the entire educational system within and without the classroom where as objectives are confined to the class room. The aims of education cannot be changed from subject to subject but objective may be changed from subject to subject. Objective of teaching Science, will differ greatly from the objective of social Science. The achivment of aims of education is beyond the Scope of School programme. There are other agencies of education also. Objectives can be achived in school programme only . Aims are broader but objectives are Specific and originate from aims. One of the main aims of Science teaching - learning as to make the lerners aware of the Contribution of Science in the history of humen civilization.

1.2.8 Exercise :

1. Answer the following : (not more than 50 words)

a) What are aims of education?

b) What are the aims of Science teaching in primary Stage?

c) What are the means of removing Superstitians in Science teaching?

2. Answer the following : (Not more than 150 words)

a) What are the different of aims and objectives.

b) Explain the aims of education.

3. Answer the following : (Not more than 250 words)

a) Explain the objectives of Science teaching in short.

b) Discuss the aims of Science teaching.

1.2.9 : Answer to Cheek your progress :

1. What are objectives ?

The behaviournal change attained by the learners at the end of any Course are called objective.

2. State 4 Objectives of Science teaching.

a) Knowledge objectives.

b) Understanding Objectives.

c) Application objectives.

d) Skill objectives.

3. State two diffence between aim & objective

a) Scope of aims are broader, Scope of objectives are Specific.

b) In addition to teacher, other agencies of education (Society) are, responsible for attaiment of aim where as attainment objectives depends mainly on teaching.

1.3 : Principles of Curriculum Construction of science at the upper Primary level.

1.3.1. Introduction

1.3.2. Objectives of the lesson unit.

1.3.3. Principles of curriculum construction.

1.3.1. Introduction :

To attain the objectives of science education, well thought curriculum is required for a long time, curriculum used to be considered as synonymous with lesson indexes on syllabus, but at present curriculum has a broad sense. All the activites conducted in schools, are included in curriculum. Curriculum is controlled by the syllabus. Curriculum is variable and evolutionary in nature. The congnitive, physical and emotional development of a child are reflected in curriculum.

1.3.2. Objectives of the lesson unit :

After reading this unit, you will be able to -

a) Speak and write about syllabus and curriculum.

b) Explain the principles of selection of content in curriculum construction.

c) Explain the principles of organisation of content matter in curriculum construction.

d) Find at the differences between logical and phychological approaches.

e) State about spiral and concentric principles of organisation of content.

1.3.3. Principles of curriculum construction :

For the construction of curriculum, three aspects are to be kept in mind. There are -

a) Learner's demand.

b) Social demand

c) Subject matter's demand.

The principles of curriculum construction can be divided in two parts.

a) Selection of content matter.

b) organisation of content matter.

1.3.3.1. Principles of selection of content :

For the selection of content, some special principles are to be given importance. Those are -

a) Objectives of science education : Such types of contents are to be selected so that the objectives of science teaching are attained.

b) Future life : Content of science should be selected such that the learner can find the way of problem solving in their future life.

c) Learner's need and interest : Content selection should be learner's need and interest centered. So that learner's curiosity and anxiety are satisfied.

d) Social need : After science education, learners do not find any problem in solving the social problems.

e) Correlation and Integration : The selected content of science should be such that the learners should be familiar with those subject matter, may be in some other subject, to them. Content of science should be correlated and integrated with other subjects.

f) Flexibility : According to the need of society and learner's, content may be changed. Content is not rigid. It is flexible in nature.

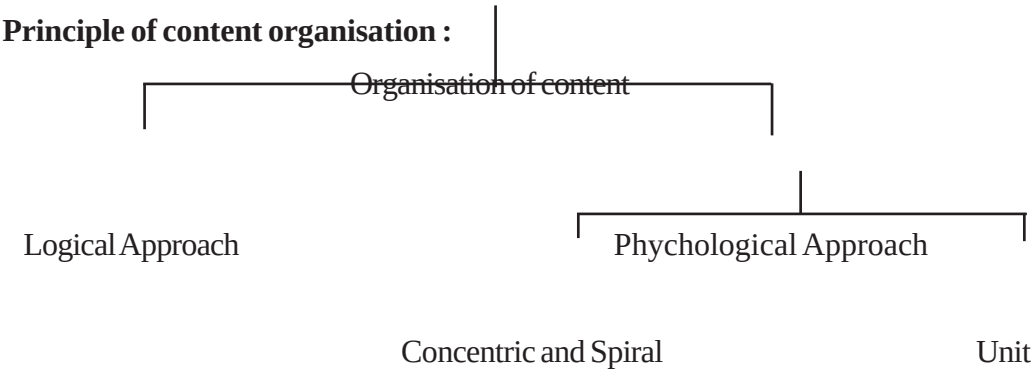
g) Development of creativity of learner's : The content should be selected in such a way that - by doing different project work and experiments, learner's creativity increases.

h) National Integration : A sense of national integration grows in the learners as learners of different cast and creed work together, play together, travel together.

i) Time limit : Content selection should be such that it could be transacted within the time, that is one academic year.

j) Leisure time : Science carriculum should have some activities, suitable for spending leisure time.

1.3.3.2. Principle of content organisation :



i) Logical Approach : In this approach, learners are not given importance. Their mental abilities and interests are being neglected. Content is arranged according to the demands of subject matter, that is, the arrangment is subject centred not child centred. The continuity of subject matter is given more importance than the need and interest of a child.

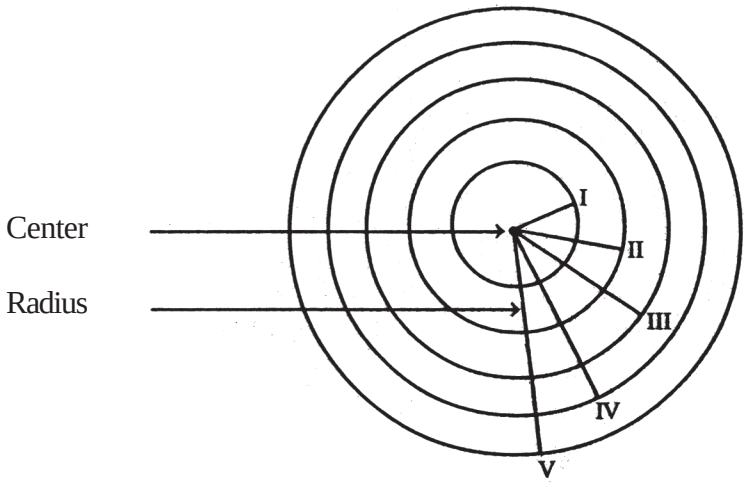
ii) Phychological approach : In this approach, the content organisation follows child centric principle, that is, the content organisation depends on the mental ability, interest and attitude of the learners. The content is organised from simple to complex, know to unknown, concrete to abstract and so on. This type of content organisation is called phychological in nature.

1.3.3.3 Concentric principles

Actually this principle is a part of pfychological content organisation. In lower clauses, there will be very

simple subject matter, organised with short discussions. But in higher clauses the extensiveness and depth of subject matter if to be increased. As the mental ability of learners increases with their growth, the scope of the subject matter is to be increased periodically.

Different circles with same center and gradually increased redius, are called concentric circles.



Concentric Circle

On going to distance gragually from the center, the radius becomes longer and so the circumstences circles increases gradually. In the concentric principle of content organisation, if the subject matter is compared with the center, the difficulty value of the subject matter is compared with the radius and the extension of subject matter is compared with the area, then this principle will be understood very easily, and this type of content organisation is said to follow concentric principle.

Every unit of a subject (science) may be arranged or shown as follows :

Class I — Subject matter very simple and short

Class II — Subject matter simple and short

Class III — Subject matter complicated and extended

Class IV — Subject matter more complicated and more extended.

Class V — Subject matter most complicated and extended the most.

Advantages of concentric principle :

a) This principle is established an phychological principle like complete to part, simple to complex, concreate to abstract, known to un known etc.

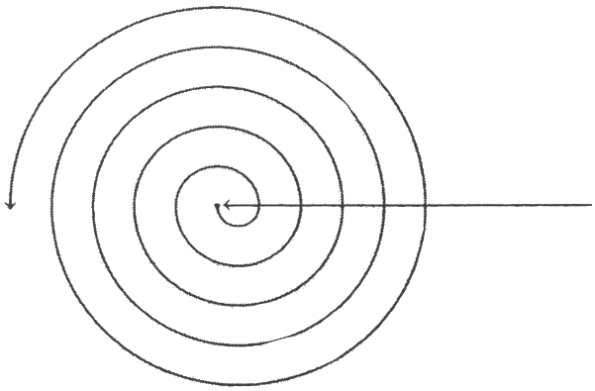
b) Learner's interest is increased and then becomes no problem in learning hard subjects.

c) Learner's can integrate the previous lesson with the next lesson.

1.3.3.4 Spiral principle of content organisation :

In this principle, the subject matter is organised continuosly with the increse of standard of class. Spiral principle is almost similar to concentric principles only the difference is, in case of concentric principle, the arrangement may or may not be continuous. for example, any topic of class III as well as of class V may not be in class IV. But in spiral principle any topic must be present in all the classes continuously.

The arangement of spiral approach is just like an inverted pyramid, in which in class one, there will be simple and short part of the subject matter, gradually will be extended continuously with the gradual increase of learning.



Characteristics of spiral approach :

1) The content is arranged from simple to complex.
2) Continuity is maintained, which is the main charecter of this approach.
3) From 'complete to part' — this principle has been followed for which learning becomes easy and strong.
4) According to the maturity of learners, the quantity of subject matter is aranged from easy to move.
5) It is established on known to unknown principle of education. Subject Matter
6) Due to the reflection of external discription to internal description principle, spiral approach helps to increase the interest of learning in learners.

Check your progress

1) What is a syllabus?
2) What are the classes of curriculam construction?
3) What are the advantages of concentric principle?

1.3.4 Let us sum up :

To construct an appropriate carriculam on any subject, learner's need, social need and of subject matter are to be kept in mind. The selection of content of science depends on some specific principles like objectives of education, future life of learners, need and interest, social need, correlation and integration, flexibility, child's creativity development, national integration etc. In case of content organisation, the subject matter is arranged on the basis of concrete to abstract, simple to complex etc.

1.3.5 Exercise :

1. Answer within 50 words—

   a) what is a curriculum?

   b) For constructing a syllabus, what are the matters that are to be kept in mind?

c) What do you understand by learner's need and interest?

d) What do you understand by learner's future life in content organisation.

2. Answer within 150 words :

a) What type of curriculum for primary stage has been stated?

b) Mentioning one unit arrange it according to concentric principle.

c) Discuss in short the psychological and logical approach.

d) Between concentric and spiral approach.

3. Answer within 250 words—

a) Discuss those principles of selection of content which are to be given more importance.

b) Discuss in short about the organisation of content matter in the concentric principle.

1.3.6 Answer to check your Progress

1) What is a syllabus?

Ans— The details of activity programme for actual class room implementation in terms of attainble units is called as syllabus.

2) What are the stages of curriculum construction ?

ans— Curriculum construction can be divided in two parts.

a) selection of content

b) organisation of content

3) What the advantages of concentric principles are—

a) The approach is based on some psychological educational principles like complete to part, simple to comples, concreate to abstract, known to unknown etc.

b) Learners interest increase and these is no problem in learning a very difficult subject even.

c) Learners can integrate previous lesson with the next lesson.

———

Unit — 1

1.4 : Appraisal of a science text book (primary/upper primary) with reference to aims/objectives and principles of science curriculum construction.

Attention should be given on the following matters for evaluating the textbooks in the ligh of Aims/ objectives of science and principles of curriculum construction :

1. The subject matters of the science text books be selected in such a way that the students can learn easily within specified time.

2. The subject matters of the text books may easily help the students in the preparation of examination.

3. The subject matters of science be in such a way that they are helpful in fulfilling the aims and objec tives of education.

4. The subject matters be in such a way that teaching can be done in different methods of teaching.

5. The students can verify the acquired knowledge collected from the environment with the text books.

6. Students can use different scientific methods in their learning process.

7. Students will be able to know the discoveries, theories, rules of science.

8. Students will be able to apply the knowledge of science in their daily life.

9. It is to observe whether the rules of constructing the curriculum of science are followed systematically, specially in selecting the subject matters of different classes, special attention be given on the need of the students of that class.

10. The subject matters of science will be selected in such a way that, the students may not take science subject as different from othe school subjects included in the curriculum.

So, the subject matters should be selected in such a way that, the correlation with other subjects may be drawn.

11. In selecting the subject matters of different classes it is to be kept in mind that the subject matters be placed according to the principles of concentric method.

12. It is also to be kept in mind that the principle of spiral method be followed easily.

1.4.1 Exercise :

Answer the following questions (each within 50 words) :

a) What is science?

b) How the children learn science?

c) What are the aims of science teaching in primary and upper primary stages?

d) what is the difference between aims and objectives of science?

e) What do you mean by curriculum?

f) What factors are to keep in mind in framing a perfect curriculum?

g) What are the principles of psychological method?

h) What is concentric principle?

i) What is spiral principle?

j) What are the principles of logical method?

1.4.2 Check your progress :

Check your progress answering the above mentioned questions and comparing them with the writings of the units.

a) ——————————

b) ——————————

c) ——————————

d) ——————————

e) ——————————

f) ——————————

g) ——————————

h) ——————————

i) ——————————

j) ——————————

Unit - 2

2.1 : **Teaching Learning Process in science**

2.1.1 : Inquiry Training Model

2.1.2 : Summary

2.1.3 : Exercise

2.1.4 : Answer to check your Progress

2.1.1 : Inquiry Training Model : This teaching model is included in information processing model. The invertor of this model is Richard Suchman. According to him, there is a tendency of inquiry within every man. Students may get joy of discovery if teaching is guided using this tendency. According to him, whereever a subject matter is preseuted before the students in the form of problems, they would try to solve the problems. In this way the students will acquire new experiences and thereby their learning will be completed. This model may be treated as the resemblance of scientific inquiry. Here the students complete their learning by their own trials. Various factors of this model are described below :

a) **Focus** : The objective of this factor is to help in learning by enhancing the desire of the students' inquiry. Another objective of this model is to exercise the scientific inquiry process.

b) **Syntax** : This factor is undertaken in five steps. In the first step, the teacher will analyse the problem infront of the students. In the second stage, the students will observe the different parts of the problem and will collect information whereever will be needed. In the thired stage, the students will try to solve the problem by the collected information. They will collect more information in their need. In the fourth stage, the students will take inference. In the fifth and last stage, the teacher will give direction in analysing the method by which the students are trying to solve the problem. He also will tell them to develop the method by removing the errors if occur previously.

c) **Social system** : According to Suchman, in this type of learning, the co-operation is the best social process. At initial stage of learning teacher's control exists and in next stage, students' control becomes prominet. Although in this stage, it is said to give more freedom to the students, but in reality, the students' tendency of doing errors is increased.

d) **Principles of reaction** : In this factor, the teacher will enthuse the students in solving the problems. He will give short answers to the students in their questions

e) **Support System** : In this factor, the teacher will make arrangements in giving adequate information and will give adequate explanation.

2.1.2 : For effective teaching, teaching models are used. This is the resemblance of teaching. There are five factors of this inquiry training model proposed by Richard Suchman Which are-fous, syntax, social system, principles of reaction and support system.

2.1.3 : Exercise :

Answer the following questions within 50 words each.

a) What is teaching model and what are its needs?

b) What is theme of inquiry training model?

c) What are factors of inquiry training model?

d) What are the steps of syntax?

2.1.4 : Check your progress : Answer the above mentioned questions and check your progress :

a) ———————

b) ———————

c) ———————

d) ———————

Unit - 2

2.2Constructivist View of Learning

It is evident from the methods of Bruner and Ausubel that they are consturctivist educational psychologists. Their construction is called connitive constructivism as they had conducted experiments on the construction and organization of knowledge. Some psychologists believe that social background and experiences are also very importanat for learning. That is why their approach is called Social construction. One such psychologist is Lev Vygotsky.

2.2.1. Social Constructivism of Vygotsky

There is some hesitation about directly identifying Vygotsky about an educational psychologists, through he had conducted significant experiments about the intellectual and lingustic development of children. From that perspective it can be said that he has some indirect but very significant contribution toward the theory of learning. Besides, Vygotsky's views can be applied in the classroom and that can prove to be very effective.

Vygotsky identified the supreme importance of social exchange and culture as the foundation for a child's intellectual development. He believed that there are two bases of intellectual developments.

Biological base – growth and development of brain

Socio-cultural base – advanced mental process that are necessary for the effectiveness and manifestation of the biological base. For instance, the development of the brain determines when a child would talk, but the child's socio-cultural environment determines the nature of his language.

2.2.2 : Vygotsky's developmental thoughts – A child produces various sounds before he learns to speak and then at one particular time learns to utter the first word. Vygotsky believes that these changes are not dissociated/unrelated events. This change is a chronological and continous modification, the rate and nature of which is largely determined by the social (family) environment depending on the biological base. The child acquires the type of language that is used in the farmily environment depending on the biological base. The child acquires the type of language that is used in the family. It is so because there is a difference between the mutual communication of the people around him and their communication with him. Such communicative exchanges doffer on various environments.

Vygotsky believed that when individuals talk among themselves of with the children such communication is not simple verbal exchanges but also signify social exchange. The social exchange is no less important that verbal exchange or cxchange of thougts. Therefore this interpersonal social exchange is significant for the development of a child and the child cannot develop without this.

Every individual engages in a mental intrapersonal communication simultaneously with the verbal exchange of thoughts. This results in the assimilation of language and helps in intellect development. This internal intrapersonal communication enriches human thought, reason and languge.

The relation between learning and development – Vygotsky argued that the leaning process must be commernsurate with a child's development. Usually a child's developmental standard is determined by certain tests of inrelligence. According to convention, a child with the IQ of 105 is taught only the subjects suitable for his level. However Vygotsky feels that the teachers can develop the child a bit more if they try. In a given social environment a child may learn only to count, but in a different environment another child of the same standard may learn how to add. The developmental rate or standard may be the same in either case. The level upto which deveolpment can be enhanced has been called **Zone of Proximal Development** (Vygosky).

Example – A teacher may consider the developmental level of a student of a particular tribe to be relatively low and thus conclude that it is natural for that child to be academically backward in the class. However according to Vygotsky if the developmental stage of the child is determined in the context of his immediate social and cultural environment then the teacher may correctly determine how far the child may be advanced, i.e. the teacher will be able correctly determine zone of Prozimal Development.

Another concept proffered by Vygotsky is closely related with Zone of Proximal Development. If the teacher can determine the level of possible development from the existing developmental level of the child, then he can also determine the nexessary aids that he must provide. Vygotsky calls this activity Scaffolding. In the above example the type of Scaffolding need for the learner would depend on his social and cultural position, i.e. the same type of Scaffolding is not effective for different students beacuse of their different social environments and positions.

A part from this Vygotsky believed that an excellent mode of development and learning is the meaning of students outside the class and social exchanges. Such exchanges extends the Zone of Proximal Development of each child facilitating the process of learning.

2.2.3 : Application of Vygotsky's theory – Some general steps of how teachers can apply Vygotsky's theory in class are given below –

- Try to know the child's present stage of learning. Try to determine how much they have learned and what is their present developemntal stage. For example, a 7-year old child understands the meaning of the words 'heavy' and 'light'. They can also distinguish between the two by lifting up objects. but they cannot clearly understand how a smaller object can be heacier than a bigger object.

Try to determine their possible Zone of Proximal Development in the example given above the teacher may think that it is possible to teach the child the fast that the wight does not depend upon size, but it is virtually impossible to give them an idea of density.

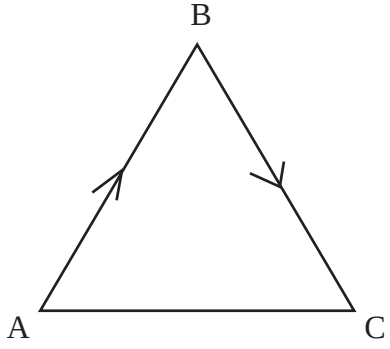
Try to determine the nature of Scaffolding needed for this purpose. For example, the experience of weighing different objects and the observation that the sacle in which a heavy thing has been palced instantly goes down in a measuring scale. This experience along with the experience from buying things from the shop can be aollectively used to give a scope of gaining a preliminary experience about weight. The teacher may also encourage the studnets to compare the real weight of an object with the visual estimation.

Encourage social exchange. The children will be able to reach the main concept through a continuous exchange of personal experiences.

Unit - 2

2.3 : Use of graphic organisers

2.3.1 : Use of Concept maps : When the complex matters of science are expressed in the form of maps for Creating Concepts among the students, are called concept maps. For example, The speed and velocity of a body are expressed in the expressed in the form of straight lines to make them understand among the students.



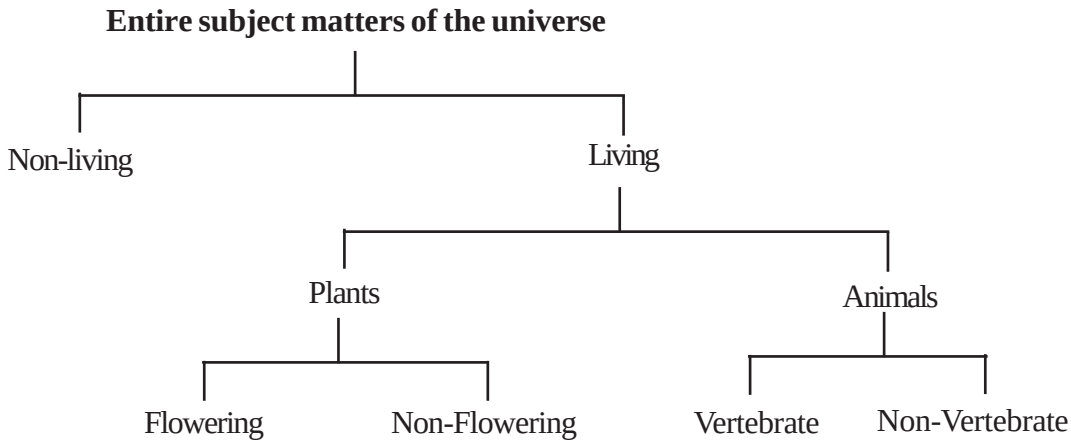
A Body starts from point 'A' and reaches to the point 'c' after crossing the point 'B' in 't' time. In this case the speed (U) and velocity (V) of the body are :

$$U = \frac{AB + BC}{t} \qquad \text{and} \quad V = \frac{AC}{t}$$

So, The line diagram is very improtant in understanding the difference between the speed and the velocity of the body and thereby creates stable conception among the students.

2.3.2 : Chart : When subject matters become Vast and Complicated, it is important and easier to express the matter in the form of chart.

To discuss the entire subject matter of the universe the help of a chart may be taken –

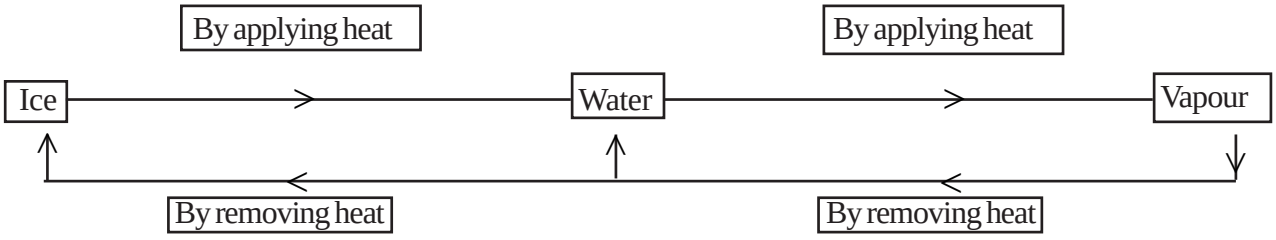


In this way, the entire complex matters may be expressed by a simple chart to make undestand the students.

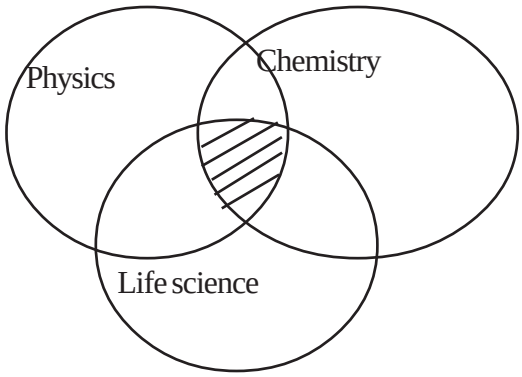
2.3.3 : Table : Some times the qualities of different matters/animals/plants may be shown by the help of tables. By doing this, a comparative study among the materials/animals/plants may be drawn at a glance, The qualities can be observed. For example, The gnalities of soild, liquid and gaseons matters are expressed in the following chart :

Matters	**Shape (in a fixed temparature)**	**Volume (in a fixed temparature)**	**Intramolecular attraction**
Solid	Remains unchanged	remains unchanged	High
Liquid	Shape is changed according to shape and size of the container.	DO	Medium
gas	DO	Volume is changed according to the shape size of the containmer	Very low

2.3.4 : Flow chart : When a matter is physically changed in different forms due to external canves, the whole system may be shown nicely by this flow chart. Ice is converted to water and water is converted to vapour by applying heat and again by removing heat vapour is converted to ice step by step. By use of flow chart the whole stystem may be shown :



2.3.5 : Venn Diagram : It is often seen that different branches of seience are inter related and their common properties are described. To clarify the common properties of differnt like subjects this type of Venn Diagram is used which is shown below :



In the above Picture the diagrams of Physics, Chemistry and Life science are shown. There is a common part, shown by 'shade'. In the common part, there may exist various subject matters. Example, Temparature is one such matter, which has distinct role in the above mentioned 3 subjects. Thus, veun Diagram gives a chart idea in developing the Concept among the learners.

2.3.6 Summary : In the discussion of 'use of graphic organisers, the idea and description of concept maps, chart, Table, flow chart, Venn diagram are given. The entire science subject is very much dependent on concept. If the conceptual level of the scientific matters becomes high within the learners of science, then learning process will be very easy and learners' interest, attitude towards science will be developed which inturn, creative powers will be enhanced.

Use of graphic organisers nicely help the student in developing this conceptual level of the science related matters.

2.3.7 Excrise :

Answer the following questions :

a) What is flow chart?

b) What is Venn Diagram?

c) What role is played by a Table?

d) How a chart helps a learner?

2.3.8 : Cheek your Progress :

Check your Progress answering the above mentioned questions .

a) _____

b) _____

c) _____

d) _____

2.4 : Use of ICT and Hands on Activities

2.4.1 : Use of ICT

2.4.2 : Hands-on-Activities

2.4.3 : Summary

2.4.4 : Exercise

2.4.5 : Check your Progress

2.4.1 Use of ICT : Full name of ICT is Information and communications Technology. Main technology which is included in this system, is the computer. So, at present the discussion on the use of Information Technology is mainly concentrated on the use of Computer. Thus, the uses of Computer are as follows : a) By Computer, learning is possible by the Combination of two media-visual and Auditory sensories. Learning process of Subject proceeds on by the combination visual Picture, and Auditory matters, which are expressed on the monitor of a computer. Allam Poivio and other Psychologists have observed that the retention learned matters becomes more stable and prominent when both visual and Auditory images are joined together instead of individual visual or Auditory images. This is called multimedia learning. he variety of this learning writing, moving Pictures etc.).

b) By computer, learner can learn any subject matter after selecting by himself and also learn with a specific speed by his own power of learning. This process is called virtual reality. The planing of the virtual reality, is prepared by expert Teacher.

2.4.2 Hands-on-activities : In teaching-learning processes, it may happen that some sudden activities are to be done when situation arises for better understanding of the subject matter. These type of sudden activities, done on situational grounds, are called Hands-on-activities. In these cases, during teaching to the students, teacher may present some materials of the class-room as LTM and teach them smoothly. For example, during teaching on 'Energy', 'Work', 'Force', 'Intertia of motion and rest', 'Lever' etc, teacher may use chalk, duster, light, fan etc. of the classroom. Suddden uses of these materials as TLM, enhance students' interest, attention, understanding, Hence teaching-learning process becomes practical and more fruitful. Not only that, these hands-on-activities develops the idea of improvised teaching-learning materials.

2.4.3 Summary : In this unit, two separate ideas — use of ICT and Hands-on-activities are discussed. ICT is mainly based on use of computer in various ways — as multimedia learning, virtual reality etc.

Hands-on-activities are sudden activities done during teaching-learning process using class-room materials as LTM. These activities enhance students' interest, attention, understanding etc.

2.4.4 Exercise :

Answer the following questions (within 50 words).

a) What is ICT ?

b) What is multimedia learning ?

c) What is virtual reality?

d) What is Hands-on-activities?

2.4.5 Check your progress :

Answer the above mentioned questions and test your progress.

a) Ans. _____

b) Ans. _____

c) Ans. _____

d) Ans. _____

Unit - 2

2.5 Role of Science Kit

2.5.1 Introduction

2.5.2 Objectives

2.5.3 Preparation of Teaching Aids in teaching-learning process

- 2.5.4.1 Teaching Aid
- 2.5.4.2 Preparation of teaching aid and Prienciple of selection of teaching aid
- 2.5.4.3 Principle of use of teaching aid
- 2.5.4.4 Need of teaching aid

2.5.5 Improvised TLM

2.5.6 Use of improvised TLM

2.5.7 Preparation Process of improvised TLM

2.5.8 Some improvised TLM

2.5.9 Educational values of improvised TLM

2.5.10 Let us sum up

2.5.11 Exercise

2.5.12 Answer of check your progress

2.5.1 Introduction :

Through the teaching learning process of natural science, children of primary schools can utilise the variations of their neigbouring environment in different ways. Different facts are continuously going on around the children. They want to know, to understand—this egarness of children are to be utilised in science teaching. A child accepts the truth by ligical thinkings.

Scientific attitude grows in him/her. The child gains direct experiences through nature's observations. The child comes in contact with different objects of nature, plays, with the object, observe it properly. Thus nature becomes the resource of science teaching.

2.5.2 Objectives :

After reading this will be added to —

- familiar with different living and non-living objects of enviroment.
- utlise these object in real life
- find out the relationship aongst these objects.
- Utilize the environmental objectives as TLM.
- draw pictures of some objects as TLM.
- draw pictures of some objects of environment.
- Construct some improvised TLM.

2.5.3 : Preparation of teaching aids in teaching-learning process

When a child comes in contact with nature, he/she learns many things, in nature. Nature has different rules and disciplines, obstruction and hazards, from which childhlearn many things. Child will gain experiences of plants, rivers, ponds, birds, animals, fruits, flowers, sand, stone, houses etc. in nature. This experience will be child's first stage of learning. In this case nature will be the first teacher. From nature observation, different questiond will arise in child's mind. Child comes in contact with different types of objects in nature. So in case of science education the only one resource is the nature. This vast of resources are spread over the entire diversed earth. To use there resources in the field of science are the only expectation.

2.5.4.1 Teaching Aids

The materials which are used to make the learning subject perceptable by the senses and learning very easily, are called teaching aids.

Classification of teaching aids :

1) Readable : Newspapers, Text books, Science magazine etc.

2) Audio : Radio, Tape recorder, Mobile.

3) Visual : Model, Chart, Picture, Map, Specimen of real object etc.

4) Audio-visual : Film, T.V. Video, Mobile and computer.

2.5.4.2 Preparation of teaching Aid, Principle of Selection :

The disposed materials of the environment, the materials which are of no use, low cost materials are used to prepare teaching aids. The Principles of preparation of teaching aids are discussed below -

1) Environmental objects are to be used to prepare teaching aids as far as possible.

2) The construction of teaching aids should be easy and simple.

3) Teaching aids should be less abiguous.

4) Teaching aid should be subject related.

5) Instead of using pictures, charts etc, real teaching aids should be used.

6) With the help of lessons, teaching aid, should be prepared.

7) The materials needed for the teaching aid preparation should be of low cost.

8) Complex teaching aids should not be selected.

2.5.4.3. Principles of use of teaching aid (TLM)

1) While using TA/TLM, learners should be familiarised with every part of the TA/TLM.

2) No of TA/TLM, more than actual need, should not be used.

3) TA/TLM, should be used with the help of learners.

4) After use, TA/TLM, should be preserved in a specific place.

5) It should be noted that on using TA/TLM, complications may not arise.

6) After use of one TA/TLM it has to be removed and then further process is to be proceeded.

2.5.4.4. Need of TA/TLM

1) In case of learning with TA/TLM, more senses are used and learning becomes easy and simple.

2) Learners' attention can be drawn very easily.

3) TA/TLM inspires the learners.

4) Learners' attention can be drawn very easily.

5) Many complex problems or concepts are made clear by the use of TA/TLM.

6) Learners' Acquired knowledge becomes realistic by the use of TA/TLM.

7) TA/TLM, makes learner more active, and collects more answers from the learners.

8) By the use of TA/TLM, learners get concrete concept of subject matter.

9) Brings variations in teaching and the monotony in teaching-learning is diminished.

10) Scientific and logical attitude grows on learners and they can draw wright conclusion.

2.5.5.(i) Improvised TLM

In case of natural teaching, there is a need of improvised TLM, improved apparatus and library. In our country, due to want of money, science education is not being improved. For this reason, in a country like ours, improvised TLM/apparatus have made importance. So, to overcome the want of costly apparatus, teachers and learners together may prepare different apparatus, models and other TLM, with the help of low cost raw materials.

The TLM (s) which the teachers and learners together prepare with the help of cheap and easily available materials are called improvised TLM or instruments.

2.5.6 Use of improvised TLM :

1) The components of improvised TLM are available easily.

2) The principle of learning by doing is carried out

3) The apparatus/TLM are very simple as per the age of the learners.

4) Learners can easily identify and buy the raw materials.

2.5.7 Preparation process of improvised TLM

The preparation follows several steps. The steps are as follows—

1) The sources of raw materials are to be selected first.

2) The size, shape and construction of the improvised apparatus/TLM should be known previously.

3) The TLM should be capable of helping the learners to achieve the competencies.

2.5.8. Some improvised TLM

(a) Preparation of simple Balance :

Two same size lids of babyfood container are to be taken and at equal distance in circumference, three wholes (in each lid) are to make and three cotton or nylon threads not same size are to be tied in the wholes and a cylindrical wooden pipe is to be taken and a strong thread to be tied in the middle of the pipe and the two lids are to be hanged at the two side of the pipe. This will work as a simple balance by taking weight on one lid and things on the other lid.

(b) Instrument to observe liquid pressure :

Two or more wholes can be made at the same distance from the bottom of a long talcum powder container. At first by closing the wholes with fingers or some other way. Water is to be poured into the container. Now on relasing the fingers, water will come out of the wholes with pressure. But it will be noted that water from different wholes are droping at different places not at the same place. At the lower whole, more distant is the dropping place. From this the learner will conclude that at lower whole more is the water pressure. So more distance is the dropping place.

2.5.9. Educational Values of improvized apparatus

1) Helps in developing thinking power in learners.

2) The science teaching of a school becomes self sufficient with the help of improvised apparatus/TLM.

3) Teaching by prearing apparatus/TLM, helps in developing scientific attitude in learners. For this, the principle of education, learning by doing becomes feasible.

4) As the learners prepare the TLM by their own hand, their construction and creative ability is developed.

5) The qualities like self confidence, self dependence etc are inculcated in learners.

6) As the teachers as well as the learners become active, a good relationship develops among them.

7) As the learners work together, a co-operative attitude is developed in them.

Check your progress :

1) What are the different classes of Teaching aid / TLM?

_____

_____

_____

2) Mention two principle use of TA/TLM.

_____

_____

_____

3) What are improvised instrument/TLM?

_____

_____

_____

2.5.10 Let us sum up

On taking the learners of primary stages, out of classroom, they will acquire amazing experiences themselves from environment.

At one side they will collect different environmental materials and will be able to, use them as TLM and at the same time, they will be able to prepare some improvised instrument/TLM, out of those materials for teachers.

On observing the curriculum of 'Paribesh Parichiti' of primary stage, it can be noted that, learners' previous knowledges have been expected on animals, plants, weather, clay, sand, rocks, sun, moon, motion of earth etc.

The above mentioned subject matter are to be experienced by the learners directly from nature without which, teaching learning of science can not be completed.

The aims and objectives of science education at any stage of education are specified on the basis of learners' age, maturation, social need and changable environment. By science education learners are not made scientists but they are helped to acquire the ability of (i) adjustment with the variable environment, (ii) Application

of the scientific knowledge in real life, (iii) explanation of natural facts in scientific manner, (iv) development of (a) Five senses, (b) Social qualities, (c) Superstitian free mind etc.

2.5.11 Exercise

a) Answer the following (not more than 50 words)

1) What are teaching aids?

2) Write two needs of TLM.

3) Maintain two chracteristics of low cost TA.

b) Answer within 150 words —

1) Discuss the principles of selection of T.A.

2) Describe the needs of teaching aid.

3) Describe the principles of teaching aid preparation.

4) Mention the educational values of improvised apparatus/TLM.

5) Write in detail, the mental powers of preparation of one improvised TLM.

2.5.12 Answer to check your progress

1) The classes of Teaching aids are—

a) Readable —Newspapers, Textbooks, Scientific magagines etc.

b) Audio— Radio, Taperecorder, mobile etc.

c) Visual— Film, TV, Video, Computer etc.

2) Two principles of use of teaching aids are—

a) While using T.A; teacher will take the help of learners.

b) Learners are to be familiarized with each part of the TA/TLM

3) Improvised apparatus are —

For teaching and learning, those instrument TA/TLM which are made up of low cost and easily available materials prepared by the teachers as well as the learners together, are called improvised apparatus TLM.

Unit – 3

Enrichment of Curricular Contents

3.1 : Food Materials :

Discussions regarding food have been done in The Text Books of III, VII and VIII classes publishing by West Bengal Board of Primary Education During teaching-learning process the teachers will tell the students of those classes about the Food materials and thereby their food habits in detail. Then a sucessful discussion on food material will be done in the class rooms.

3.2 : The world of living and moving things :

In the text books of classes III, IV, V and VI, Published by W.B.B.P.E, discussions on Bio-diversity, Environment and sky are given. The teachers of those classes have to discuss the above mentioned matters deeply during the teaching-learning period. Hence the students understanding, interest, attitude etc. on those matters will be developed. Thus in course of time, students' curiosity will be developed, which in turn they would be eager for undergoing higher studies on those matters.

3.3 : People and ideas :

In the text books of classes III, IV and V published by WBBPE, the subject matters about people have been discussed. During teaching-learning period, the teachers would disscuss about people and its related matters deaply.

3.4 : Natural Resources :

The discussion about natural Resources has been done in every class starting from III to VIII. Teacher will tell the students of those classes about the resources of mines, Forests and like this indetails as and when requried.

3.5 : How things work :

Discussions about Force, Pressure, Electricity have been made in the class VII & VIII as prescribed by W.B.B.S.E. During the teaching-learning period the teachers would tell about those matters to their students in detail. They would also inform the students about the impact of the matters on human life.

3.6 : Natural Phenomena :

Natural Phenomena has been discussed in the classes from III to VIII. Teachers would tell the students of those classes about the impact of Natural Phenomena on human life and also tell them what should be done by the people in the cases of specifics Natural Phenomena like thundering, lighting etc.

In this way Curricular Contents of different classes would be enriched.

Unit – 4

Assesment in Science

4.1 : Concept of Continuous and Comprehensive evaluation :

For few years it is seen that different types of changes have been occured in the Examination system, which are unit Test, Semester system etc. In semester system, first final examination has been taken after completion of one unit, is called 'Unit Test'. The cause of taking such type of Examination is to establish continuous evaluation. The examination which has been taken generally at the end of one year is called Final evaluation. But for continuous evaluation, both Formative and Summative evaluations are joined-to-gether. For example, a student has been promoted from class II to class III, but his score in mathematics is 40, which means there are some problems in Mathematics and he gets little opportunities to remove the old problems. But at present, if any student gets 9 marks out of 20 marks in second Unit Test of Mathematic, the subject teacher can easily realise that this student has some problems in the Mathematics and immediately he takes certain measures to remove the problems. So, continuous evaluation gives feed-back to both teacher and students. Teacher can realise whether his teaching is effective or not and at the some time, students can realise whether their learning is effective or not.

All-round development of students is the real meaning and objectives of education. So in the evaluation of education, arrangement should be made in such a way that students can evaluate their performances in all respects. One of the major characteristics of evaluation is comprehensiveness. There are many dimensions of evaluation– Physical, Mental, Social and Emotional etc,. So, there are many dimensions of evaluation by which above mentioned qualities of any student Can be done. These Collection of different types of evaluation is the Comprehensiveness of evaluation. So, different types of techniques and tools are required for the Comprehensive evaluation.

Unit – 4

4.2 : Assignment through written and Practical assignment.

4.2.1 : Introduction

4.2.2 : Position in Education

4.2.3 : Evaluation through written assignment

4.2.4 : Evaluation through Practical assignment

4.2.5 : Summary

4.2.6 : Exercise

4.2.7 : check your Progress.

4.2.1 : Introduction :

The words, Measurement, Assessment and Evaluation are used in the field of education. Apparently, these words are almost some, actually there are large differences among them. So, let us see what differences exit among them.

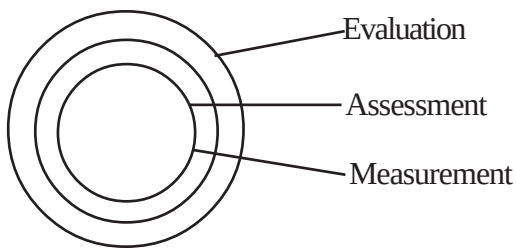
4.2.2 : Position in Education :

We use the words Measurment, Assessment and Evaluation in education. For realising the differences among them, one example is given here.

Suppose, one teacher has given Scores on examining the Mathematics paper of class IV students. Say, one student (Ram) has obtained 60 marks in mathematics. Is it possible for the teacher to evaluate Ram for this score? What is your Consent? It is sure, the evaluation can not be done by this. This is Measurement.

At first it is to be known that what was the total score. Let us assume, the total score is 100. Then we can say, Ram has obtain 60% marks in Mathematics. Now is it possible for the teacher to tell about the evaluation of the student? What do you think? 60% of the total score is good– is it not? It may be. This stage is really the stage of Assessment, which helps the evaluation.

If it is seen, all students of the class in which Ram reads, have obtained more than 60 marks out of 100 marks, then what is to be said? Ram has done poor result in Mathematics. If the incident is reverse, that is if no one of the class has obtained above 60, then, what would be? Then it would be said that Ram's result is the best in the class. Now, it can be said in other way that the Score 60 out of 100 is always good, whatever the marks of other students would be. But, here, one question may be raised that is, whether the questions were easy or hard? Then, the evaluation of Ram's result would be some what different. Thus, from this discussion it is realised that the Evaluation is a wider concept and within this, there are measurement and assessment. Again, it is said that, there is another concept within the assessment is measurement. The relation among three concepts are show below pictorially.



Measurement is the quantification statement. The meaning of Assessment is to assist the judge.

It is also to be remembered that some educationists have used Assessment and Evaluation in the same meaning. They are not interested to make any difference between them.

In general, we understand evaluation as to act of placing value on something. In education, generally we evaluate the students and teaching-learning process. According to C.E. Beeby, 'Evaluation is the systematic collection and interpretation of evidence leading as a part of process to a judgement of value with a view to action'.

Again, according to May Thorpe, 'Evaluation is the collection, analysis and interpretation of information about any aspects of a programme of education, as a part of a recognized process of judging its effectivesness, its efficiency and any other outcomes it may have'.

One of the main objectives of evaluation is to judge the students' progress is teaching learning process. Two characteristics of evaluation are —

a) It is a continuous process — Evaluation will not be done at a fixed time, on the otherhand, it will be done through out the entire period of teaching learning process.

b) It is a comprehensive process — The main aim of education is the alround development of the learners. So, the evaluation judges all matters of physical, mental, emotional, social etc.

According to Cronback, 'The evaluation is the collection and use of information to make decision about an educational progress'.

According to Bloom, 'The evaluation is a process of judging the objectives of learning and instruction that have been attaind'.

From the above discussion, it is understood that although the measurement is objective based, the objectives of evaluation are wide. Measurment is primarily quantitative. But evaluation is both quantitative and qualitative and it takes final inference. Measurement only helps in reaching inference.

4.2.3 : Evaluation through written assignment :

There are two special fields in measuring learning experiences of science — (a) Some questions are set in the form of written. The students will answer the questions. On realising the answer, the teachers will understand what amount of knwoledge, understanding and application have been acquired by the students. The written assessment is of the three types —

i) Very short answer type
ii) Short answer type
iii) Essay type

With the help of these 3 types of questions the work of evaluation is done.

4.2.4 : Evaluation through practical assignment :

Practical assignment is the second type of measuring learning experience. In this stage, arrangement has been made for measuring practical experience in science subjects. Here, there are some practical examinations. On observing nature of performance of examination, it is judged how much practical skills have been acquired by the examiners. The teachers examine the students through small praticals.

4.2.5 : Summary :

In this unit, the concept about measurement, assessment and evaluation is given in theoretical discussion and pictoral diagramme. For judging the performance of learner's stage, assessment is the second stage and evaluation is the third and final stage. Evaluation judges the all round development of a learner.

Here also it is discussed that the evaluation of the students about their learning experience in science subject is done by two ways — (a) theoretical or written assignment and (b) practical assingment.

4.2.6 : Exercise :

Answer the questions in the brief (within 50 words)

a) What is measurement ?

b) What is assessment ?

c) How do you define evaluation ?

d) What is the relation among measurement, assessment and evaluation ?

e) What do you mean by assignment ? What are the types of assignment ?

4.2.7 : Check your progress :

Answer the above mentioned questions and check your progress :

a) _____

b) _____

c) _____

d) _____

e) _____

Unit - 4

4.3 : Various tools to assess progress of students in science

4.3.1 : Observation

4.3.2 : Asking question

4.3.3 : Presentation

4.3.4 : Hands-on-assessment

4.3.5 : Summary

4.4.6 : Exercise

4.4.7 : Check your progress

4.3.1 : Observation :

It is the best tool of evaluation in scince subject. A learner will not get proper knowledge, if he does not observe various subject matters, the results of various experiments and he will not be able to make any

inference. So, the three important stages of science — Experiment, observation and inference will not be done properly. Hence teaching learning of scince will remain incomplete if observation is not done properly. Thus, the observation tool is very important in science subject.

4.3.2 : Asking question :

When a learner performs experiment and takes an observation, it is very essential to put questions to him. On learning the answer of the said questions it is to be understood what portations he has realised and how he has reached to the inference. Hence, asking qustion is another important tool.

4.3.3 : Presentation :

It is also an important tool of evaluation in science. When one experiment is done, it is very important to put the observations of the experiment in writting form, otherwise proper inference would not be taken by the experimenter (learner). Hence the importance of proper presentation is understood.

4.3.4 : Hands-on-assessment :

Experiment, observation and inference — these three factors are important in learning science and in evaluation system. But, other than those three factors, there are various tools. For example, when lightling and sound are created in the cloudy sky in almost simultaneously, students are to be asked instantaneously about these happenings and there by evaluate their knowledge in science. In this way, when air is pushed into a Ballon, it is going to be enlarged and ultimately it is burst out. Now, the students may be asked, why the incident occur ?

In this way, from the sudden incidents, students' learning experience may be evaluated.

4.3.5 : Summary :

In this unit, observation, question asking, presentation, hands-on-assessment regarding evaluation of science learning are discussed. The teachers will get the knowledge about these tools and use them in evaluating their students' learning experimence in science.

4.3.6. : Exercise :

Answer the following question (each within 50 words)

a) What is observation tool ?

b) When presentation tool is used ?

c) State an incident of instantaneous evaluation.

4.3.7 : Check your progress :

Answer the above questions and check your progress :

a) _____

b) _____

c) _____

Unit - 4

4.4: Preparing a good question paper

4.4.1 : Introduction :

At the end of teaching learning process, the students acquire some skills for performing various types of works. These skills for performance are called Achievements. The test for measuring these Achievements are called Achievement Tests. This is a good test. At the end of some specified time, when teaching process is also ended, an Achievement Test is applied to measure the students' acquired skills. Generally, in the schools, Sutdents' are to sit for some examination, which are called Achievement Tests. These tests are of two types– Standardized and Teacher - made Test. Achievement Tests Carry some important roles–

- They give some feed-back to the students in the learning process.
- They give some feed-back to the teachers for the effectiveness of their teaching process.
- They point out any trouble which arises in the learning process of the students.
- They offer Grading of students at the end of examination.

Generally, the Achievement Tests are prepared by the teachers. Here, we shall know how these tests are prepared. Also, it will be also discussed, how the result of this Achievement Test is stated and how the guardians can realise these results.

4.4.2 : Objectives

At the end of this unit, you will be able to :

- Speak about the Achievement Test – nature and needs.
- State the stage, of constructing Achievement Test.

- Explain how the analysis of subject matter is being done.
- State how the insturctional objectives are written.
- Prepare Blue Print.
- Explain the concepts of grading and marking.

4.4.3 : Content Analysis

It is the first stage of constructing Achievement Test. The subject matter may be one unit or more than one unit. In all cases, the Principles and stage, will be of same type. For Simplicity, here only one unit is considered for preparing the Achievement Test. So, one unit of 'Science' of any 'Class' may be taken. Selecting a particular unit, Sub units of this Unit are to be taken. Thus

Class___ Unit___

Sub-unit___

a)

b)

c)

It is to be remembered that the sub-units are to be meaningful and the subject matters of each sub-unit should be sufficient, otherwise troubles may be created during the preparation of Test-items. This division of subject unit into sub-units is called the 'Content analysis'.

4.4.4 : Writing Instructional Objectives

Generally for preparing Achievement Tests, coguitive domain and Psychomotor domain are considered. In these domains four objectives – Knowledge (K), Understanding (U), Application (A) and Skill (S) are taken.

In science, these four objectives are considered. Now for each sub-unit, these objectives are selected. Some times it is seen that there may be three objectives instead of four.

4.4.5 : Preparation of Blue Print – Table of Specification

After selecting objectives. Blue print is prepared. On the basis of this Blue Print, Test items are Prepared.

Before Preparing Blue Print, full marks of the Test is considered. Let us take full marks as 25. Now, it is to be decided how many Test-items for K, U, A and S are to be selected. It is to be remembered that the Difficulty Value (D.V.) of 'K' would be higher than that of 'U' and D.V. of 'U' would be lower than 'A' and 'S'.

Over all number of test items for K, U, A and S will be selected on the basis of the class for which the Test is to be prepared. In general, three types of test-items–Essay (E), Short answer (SA) and Very short answer/ objective (VSA) are considered. It is also decided, how many marks are alloted for these three types of Test items (T.I.). An example is given below:

Nature of Test Itemes	Allotted numbers
Essay type (E)	7
Short Answer type (SA)	2
Very Short Answer type (VSA)	1

Another important decision is to taken by the experimenter, how many numbers are to be alloted for each sub-unit and how many numbers are to be allotted for each type T.I. for each case, Tables are to be prepard which are called 'Table of Specification'. The tables are as follows.

i) Weightage to instructional objectives :

Stages of Objectives	Numbers	Percentage of Numbers
Knowledge (K)	4	16%
Understanding (U)	8	72%
Application (A)	6	24%
Skill (S)	7	28%

ii) Weightage to sub-units :

Sub-Units	Numeber	Percentage of Numbers
Sub-Units - a	7	28%
Sub-Units - b	10	40%
Sub-Units - c	8	72%

iii) Weightage to Test-items (T.I) :

Types of T.I.	Numbers	Percentage of Numbers
Essay type (E)	7	28%
Short Answer type (SA)	4	16%
Verey short Answer type (VSA)	14	56%

On the basis of above mentioned three specification Tables, following Blue Print is prepared :

BLUE-PRINT

	Knowledge			Understanding			Aplication			Skill			Total Numbers
	E	SA	VSA	E	SA	VSA	E	SA	VSA	E	SA	VSA	
Sub-unit (a)			(1)1			(2)4			(1)2				7
Sub-unit-(b)			(3)3							(1)7			10
Sub-unit-(c)				(2)4					(2)4				8
Total			4	4		4			6	7			25

N.b.: Number within brackets indicate number of test-items and Number outside brackets indicate total numbers allotted for this type of Test-item.

After Preparing the Bule Print, the experimenter is to prepare Test Paper on the basis of this (B.P.). One example is given below:

Test Paper: Full Marks :

Subject: Time :

General direction :.....

Direction :.....Group-A (V.S.A.)

Direction :..... Group-B (S.A.)

Direction : ..... Group-c (E)

Direction :.....

Next step after Test paper Preparation is to prepare scoring key.

For Very Short Answer Type. T.I. The Scoring Key is Prepored in the following manner :

Serial Number of T.I										
Answer										

For Short Answer and Eassy type T.I. the Scheme is as follows :

Serial No of T.I	Probable Answer	Number Stucture	Total Number

4.4.6 : Reporting Result

After application of the Achievement Test, the obtained scores of the Students are collected. Following measures are taken for realising the students' scores to the guardians and other public :

4.4.6.1 : Grading

Depending upon the performance of the students, the marks are specifically classified into few classes - this system is called 'Grading'. These Grades may be expressed interms of letter, words etc. There are two types of Grading _____

a) Absolute Grading	**:**	**Example**
70 on above	:	A grade
60-70	:	B grade
40-60	:	Cgrade
Below 40	:	D grade or Failed.

b) Comparative grading : Here obtained scores are converted into Percentage and then, grades are given.

Example :

upper 5%	:	A grade
next 10%	:	B grade
next 10%	:	C grade
next 75 %	:	D grade

4.4.6.2 : Marking :

It is the Primitive system of giving marks to the examiners after their completion of examination. This system has been going on in India from the English Period. Now-a-days, this system is given much importance. This marking system is criticised in many cases in India. It is said that instead of old marking system, Grading System should be introduced, because the question of validity and reliability of eassy type questions and objective type questions arises. According to the report of Mudaliar commission, it is said, "It is very different to distinguish between two pupils, one of whom abtains. say 45 mark and another 45 or 47".

Now-a-day in many cases, instead of marking system , Grading system is used. In Wast Bengal, Grading system is being also introduced in school level examination.

4.4.7 : Summary

In education, the Achievement Test is very important. After completion of any school subject, how much skills, understanding etc. have been acquired by the students, can be measured by these Tests. So, the teachers

have to prepare various Achievement Tests in different times. There are various steps in preparing such type of Tests. At the first stage, the selected unit is divided into a few sub-units. Then, objectives are selected for each sub-unit. Here, knowledge, understanding, skill and application – these four objectives are considered. Next task is to prepare 'Blue Print'. Here inferences are taken in different stages – how weightage is to be distributed among different sub-units, objectives etc. and what whould be the nature of the Test items. After considring all these, Blue Print is prepared.

After preparing Blue Print, Test items are selected from different sub-units. Then, collecting all Test items, real test is constructed.

After that, scoring key is prepared and for exaplanation of obtained scores, Grading and making systems are discussed.

4.4.8 Exercise :

Answer the following question :

a) What do you mean by achievement test ? What are the main objects of that type of test?

b) What are the general steps of preparing achievement test ? Describe each step in short.

c) What is specification table ?

d) If a teacher wishes to set hard question, then what he will do ?

e) Selecting an unit of your subject, state how you will describe the steps of preparing content analysis, objectives, Blue Print.

f) Depending on the prepared Blue Print, construct a test and marking scheme.

g) What is Grading ? How many Gradings are there ? State the merits and de-merits of using Grading ?

4.4.9 Check your progress :

Answer the above mentioned questions and check your progress.

a) _____

b) _____

c) _____

d) _____

e) _____

f) _____

g) _____

Part - C Social Studies

Unit - 1

Social Studies – Concepts, Objective & Scope

1.1 Introduction

Our world is an wonderland – which is full of various matters and elements. Among these, the most important is the man and his natural environment. In the ancient age, the men, who were dependent on natural environment, presently they can control themselves with the nature. Thus, gradually the inter-relationship between man and natural environment makes the concept of Social-Studies. Now the curriculum organization, transactional strategies and appraisal of text books would be discussed in detail, followed by NCF-2005 through discussion of the objectives and areas of Social Studies.

1.2 Meaning, Concepts need and Scope of Social Studies

The two individual subjects – History and geography prescribed by the WBBPE are included in Social Studies (SS) . Political science, economics and Archeology are also includede in Social studies. The main concepts of this subject is to make the students aware through logical investigation by asking them questions of different point of views of their known and real society.

Social studies takes the responsibility to develop different sense of values like independence, confidence, mutual respect and dignity in diversity.

Social science will expand the ways of achieving the necessary social, cultural and analytical skillness in the gradual developing interdependent world. As it is a Multidisciplinary subject, so social science will select its subject matter from History, Geography, Pol. Science and Economics. The method

of teaching would be selected in such a manner, so that the learners would be interested in this subject and gradually they would try to study this subject in their higher educational course and would be eligible to get a professional job based on this subject.

1.3 Curriculum organization of Social studies at the upper primary stage as reflected in NCF-2005

Studies at the upper primary stage as reflected in NCF-2005.

- In the upper primary stage, social studies will select its subject matter from History, Geography, Political science and Economics etc.
- The incidents and development of different parts of the world and the different regions of India would be discussed in its subject matter.
- The geography will help to develop the balanced view point of resources, development and environment related questions from local stages to the whole world.
- Political Science will introduce with the learners about government formation in local, state and central level and the process of democracy along with the administration system.
- The economic factors will make the learners skilled in observing their family, market and financial institutions of the state.

1.4 Transactional strategies suggested in NCF 2005

- In teaching social studies new stimuli are required for achieving knowledge and skills of the learners and that may continue through inter discussion / debete among them.
- In Social Science, teaching method would be identified in such a manner that creativity, gracefulness and criticism view point would be encouraged.
- To establish a bridge between past and present, to understand the changes of the society, solving problems and dramatize those and participate in special roles should be undertaken these type of programme.

- The different types of Audio-visual matters are distributed in our surrounding — among those photograph, tables, maps, archeological and earthly culture etc. are necessary to apply at the time of teaching.
- Participation in Debete and discussion should be emphasized for enrichment of teaching method. In this view-point both teachers and learners would be liveful in social reality.
- The duty of the teacher would be to present in the classroom the various shades of the reality in the society through discussion and analysis and develop the self awareness of the learners.

1.5 Appraisal of WBTBCL social studies text books

- The history book of past and cultural heritage for class VIII approved by WBBSE is presented before the teachers and taughts as an example.
- As per direction of NCF-2005, the subject matter of this book has been prepared.
- As far as possible in easy language and with the help of pictures and maps the history of modern Indian sub-continent has been discussed in this book.
- The pictures of this book are not at all isolated, but these are part of the subject matter of this book. The maps which are used in different lessons are helpful for realizing the political, economic and cultural situation of our country.
- The most important part of history is the years and dates. The details and comprehensible concept has been given for the learners.
- The learners will get oppertunities to write notes on their own thoughts about this subject at the margin of many pages of this book.
- The most important part of teaching-learning is continuous comprehensive evaluation through out the year. For that reason, in the begining of lesson and at the end of the lesson, the activities like — 'Do yourself', 'Think yourself', 'find out and write by imagination' are included. Within the class room, Formative Evaluation is used. The teachers will prepare questions following the directions written at the end of every lesson.

Check your progress

Direction : (A) Write your answer in the space given below.

(B) At the end of the lesson, verify the answer hint.

1. Describe the objectives of Social Studies.

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2. Organize the curriculum of Social Studies at the upper primary stage as reflected in NCF-2005. (write in brief)

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3. State the transactional strategies suggested in NCF 2005.

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1.6 Let us sum up

Social Study is a Multi disciplinary subject. That means it is a compact form of History, Geography, Political Science, Economics, Archeology etc. The man is a social creature. So, the subject which is inter related among the man and his environment, considered as a compulsory subject at upper primary stage for developing the clear conception and knowledge of the area covered of that subject.

Now it is the duty of the learner teacher to follow the teaching techniques.

1.7 Unit and Exercise

Directions : Answer the following questions within 150 words :-

(a) Discuss the importance and area of social study.

(b) Express your opinion on curriculum organization of social studies at the upper primary stage as reflected in NCF-2005.

(c) Describe with example the three techniques of instructions at upper primary stage.

(d) Appraise the class VII geography text book published by WBTBCL.

1.8 Answer-hint to check your progress

(1) Follow 1.2.

(2) Follow 1.3.

(3) Follow 1.4 and write in your own language the experience in the classroom.

Unit - 2

Enrichment of curricular content

2.1 Introduction

In this unit of Social Studies, the importance is given in some parts of the subject matter of geography and history which may be called the back bone of the subject. The first unit of geography is Map. This Vast world is the residence of the whole human race — the different human races dwell in different parts of this world. A map is usually considered to be a drawing to scale of the whole or a part of the surface of the earth on a plane sheet of paper or a two dimentional plane surface. The physical components of the Earth – like mountains, hills, rivers, lakes, sea, oceans etc. exhists. These influence human life. Instead of showing the details of true and visible shape and size of different objects, the map makers uses different symbolic drawing to scale. After knowing all these, when the learners would come to know the diversities of Indian life style, they would like to establish the relationship between physical diversity and human life diversity. Thus they will find out the unity in diversity.

After these stages, the learners of upper primary would come to know the story of tribals of own states, as well as their life style, their patriotism. Then the sense of patriotism will develop in the mind of young learners.

2.2 Map reading (geography)

2.2.1 What is a Map?

The term map has pronounce from a latin word Mappa — means table cloth. Actual meaning of map is the symbolic description of the earth or part of it.

Now as per scientific point of view the map may define in this way – according to the rule of mathematical projection when a symbolic diagram of the earth surface or its part is drawn to a specific scale having some specific objectives, is called a map.

2.2.2 Types of Maps

According to the characteristics we may divide maps into different parts. Here we will discuss about three types of maps.

a) Physical Map – The maps which are prepared by the survey of India shows the relief, river, lake, waterfalls with height, the depth of the oceans etc. all sorts of natural objects exists on the earth shown in details following the international conventional signs.

b) Political Map – Here also the conventional signs are used prepared by the survey of India for showing the countries under different continents. The administrative divisions within the countries, the provinces, districts, the main cities, towns, ports, transport system etc. are shown in this type of map.

c) Thematic Map – The maps which are dealing with some theme or story, centred with a single factor, such as population, crops, life of people, occupation, weather condition etc. are classified as thematic map.

2.2.3 Some concepts about map

The whole or a part of the Earth surface, having three dimentions, when projected on a plane surface in two dimentions and drawing to scale, is called as a scale.

A map being the mental and manual creation of man gives only those details which the mapmaker wants to give. Some symbols or conventional signs which are internationally accepted are used in the map, which may not have similarities with shape and size of the objects represented. So maps may define as the symbolic drawing to scale of the visible objects of the whole or part of the earth.

Some specific concepts in relation to maps :-

- **Distance –** Generally the linear distance between two places is taken into consideration in the map. For example, the distance of the river Ganges from Gangotri to its mouth at Bay of Bengal is 1500 km.
- **Directions –** At the time of map reading correctly, the teacher will draw and explain the direction of the map on the black board. As per convention, an arrow head drawn on right-upper side of the map which indicates the North. Other directions are expressed accordingly.
- **Conventional Signs –** At the time of local map reading, learners will notice some colourfull symbols having varieties of shape. Actually these are conventional signs prepared by Survey of India. For showing temple, Mosque, Churches, rail lines, trees, bridges, metal and unmetal roads, river, pond etc. on the map. Different colours and symbols are used. The teacher will help the learners to know

these symbols with descriptions properly. Then the learners will read the maps by their own and will realise the natural and social pictures of the local areas without the help of others.

- **Diagram –** There are so many subject matters in geography which are difficult to explain verbally. But with the help of diagrams these may be explained easily. For example —

  a) Causes of yearly season change.

  b) How meander develops in the course of river.

- **Sketch –** The role of sketch is great in teaching geography. Many abstract subject matters may be explained through sketches. Sketches help to teach physical geography easily. For example, the location of Darjeeling and Jalpaiguri hilly regions may be explained easily by drawing sketch map on the black board. Again the course of river, wind direction, the difference between peak and valley also possible to explain easily by drawing sketches on the black board.

2.3 Understanding diversity

2.3.1 Diversity of India in relation to caste, religion and region

A. Regional diversity according to the configuration of land : There are five distinct Physical divisions in the physical map of India. (1) The great mountain walls of the North, (2) The Northern alluvial plains formed by the rivers Indus – Ganges and Brahmaputra, (3) The plateaus of Central India, (4) The Deccan plateau and (5) The Eastern and Western Coastal low lands of South India.

(1) The great mountain walls of the North : These mountain walls extend two thousand miles in East-West direction and one fifty to two hundred miles wide in N - S. There are large valleys & plateaus exhist within it. Kashmir is called the heaven of the world for its fertile valley and natural beauty. Just Eastern side of it the state Nepal is situated, the foot hills of which is covered with green grass and full of beauty.

(2) The Northern plain lands : It is situated just on the lower portion of the mountain regions. More than half of the total population of India live in this place for fertile soil of this region. This region extends about two thousand miles from Bay of Bengal to Punjab, following the Ganges Coast and from the bank of Indus to Arabian sea. This region enriched with variety of crops which enjoy enough water throughout the year, from the perrimial rivers like the Indus, the Ganges, then Brahmaputra and their tributaries coming down from the Himalayas. Many large business centres have been established here with good transport system. The Aryans came first and established their dwellings here. So, from the Himalayas to the Vindhya mountain region is called the Aryavarta or Indo Gangetic plain.

(3) The plateaus of Central India : In between the Indus and the Ganges valley there is Thar desert, which is extended upto Aravalli mountain. After this mountain range, starts the plateaus of Central India which gradually slopes down to the Ganges plains in the North and Chotlanagpur mountains and forest regions in the East where it ends. There are situated Malab, Rajputana, Bundelkhand and Bughelkhand within this region. These regions are covered with dense forest which is difficult to penetrate. The tribal and weaker caste people keep their existence in these forest regions.

(4) The Deccan Plateau : From the Southern part of the Vindhya & Satpura hills to Cape comorin, the total land mass of South India is called the Deccan. The Mahanadi, Godavari, Krishna, Kaveri are

the non-perrinial rivers of this region, which cause this region infertile. So, the population density is less. For the poor transport system, no large empire could not established here in ancient period.

(5) The Coastal plains of the Deccan : From Western Ghats to the sea coast – a narrow low land and from Eastern Ghats to the sea coast comperatively wider low land make these area fertile like Northern Plain land. These lands are enriched with full of crops. Due to excellence in navigation, the people of Western Coastal region established a trade and business relation with the people of Egypt, Babilon, Rome etc. on the otherhand the people of the countries of Eastern Coastal region did the same with Java, Sumatra, Burma, Shyam, Indochin and colonized there too.

B. Diversity pertaining to the race : Indians are divided into five races according to the physical construction and language.

(1) The upper caste Hindus are mostly tall, fair complexion and sharp nose who speak in Hindi, Bengali, Marathi etc. language originated from Sanskrit. They are called the Aryans.

(2) The people who live in the foot hills of the Himalayas and the mountanious regions of Assam are named by Gorkha, Bhutia, Khasia etc. They look like Mongolians – are Yellowish, flat face and blunt nose.

(3) The South Indians speak in Tamil, Telegu, Kanadi, Malayalam language are called Dravid. They have medium physical structure and black complexion.

(4) The Kol, Vill, Munda, Santal etc. the primitive people live in the forest. Their physical structure is dwarf, black skin and blunt nose.

(5) The oldest primitive people of India are the ansestors of Nigrito. They maintain their primitive livelyhood and language. Some similarities of this race is found in Kadar and palaian in kochin and Tribankore, Naga in Assam and some races in Rajmahal hills.

The experts comment that the mixture of Aryans, Dravid and Mongal made a new mixed race in India.

C. Diversity in religion : In India diversity also is found in religion. The Hindu and the Islam are the main two religions found in India, along with Sikh, Buddhist, Jain, Christian etc. religious are also found. Among them in number, first position is Hindu, then Islam. They live together in peace. The Sikhs live in Punjab.

Thus the physical, racial, religion diversity are found in India. We can observe diversity in language, dress, physical structure and social customs among Indians. For so many diversities, India is called the miniature form of the world.

2.3.2 How diversity makes our life rich

As India is called the miniature form of the world, so we can find here different types of physical characteristics, cultural varieties, diffenent believes of religious, different types of economic characteristics and different languages. So we all Indians, interact, co-ordinate, integrate and co-operate each other then we will be enriched by which the enrichment of the country would be possible.

2.3.3 Meaning of Unity in Diversity

Though there are diversities in physical features, languages, religions, food habits, dresses etc. but the people of India think at first to be an Indian and India is their mothelland. When the foreigner ruled

India, they could not break up the unity of inner civilization of the people of India. They accepted many good things from that and enriched themselves but couldnot spoil their unity. So, following Smith, we may say – India offers unity in diversity.

2.4.1 Story of Birsa Munda

Birsa Munda a folk-leader and Indian Tribal freedom fighter, belonged to Munda tribe and ever remembered as an important figure in the history of Indian independence.

He was born on 15th November 1875 at Ulihatu in Ranchi District, then Bihar. His parents were poor labourers thus Birsa's early years were very average as an Munda child, grazing sheeps in the forest and playing with friends.

Due to poverty he had to move to Ayubhatu, his maternal uncle's village and got admitted in a school run by one Jaipal Nag. Observing his intelligence a German Mission School got him admitted but converting him as a Christian as pre-conditioned and named Birsa David. There he read Ramayana and Mahabharata and other Hindu book and gained maturity.

A formative period of his life took shape from the year 1886 to 1890 while staying at Chaibasa. He was influenced by Sardar's agitation, involved in anti-missionary and anti-government movement and left the school.

As he was shrewd and intelligent he perticipated in the agitation to defuse the restriction imposed upon the traditional rights of Munda's in the protected forest under the leadership of Gidiun of Piring gidiun and the gain was during 1893-94 all waste lands in villages were constituted in protected forests and cultivable lands to the needs of villages.

The polygamy a social evil was then practiced in Munda society, this pained him and stressed for Monogamy. At one time Mundas, Oraons and Kharias believed him to be a messenger of God, miracle worker and preacher. He advised the people to worship cow and protect cow slaughter.

As time goes the British Raj behaved as Feudal State. The non-tribal peasantry penitrated and grabed the tribal land by hook and crook. Gradually land owners in the villages redued to the farm labourers.

By a series of revolts under his leadership Birsa challenges of agrarian breakdown and cultural change. Tremendous harassing by his act British Raj made a trap and he was cought faithlessly on 3rd February 1900 and afterwords died mysteriously on 9th June 1900 in Ranchi Jail with a very short span of 25 years only.

However the movement compelled the British Raj to introduce laws so that the land of the tribals could not be taken away by the Dikus.

It is proud to mentioned that the Portait of the only tribal hero hangs in the central Hall of the Indian Parliament.

2.4.2 Life of Tribal people

The tribal of India live in the forest regions of Bihar, Orissa, Madhya Pradesh, West Bengal etc. They lead a very hardship in life and are called in different names in different areas. For example – Munda, Santal, Hoe, Oraon, Koal, Vill etc.

Rural life – They set up collectively a small villages of their own. After cutting trees and clearing the jungles. They made their own society in the form of a commune and live their collectively for they formed by their safety and security of their identity. For example, Munda society, Santal society etc. In every tribal village one priest is appointed, who will look after the religious activities, festivals etc. In different tribes, these priests are called in different names like – Sarder, Maji etc.

Food – Tribals used Jhum farming for their Cereals. They also collect wood, honey, fruits, varieties of roots as food. Hunting of wild animals also practiced among them. They reared cow, goat and sheep for collecting milk and meat. Exchange system also practiced among them for maintaining their livelyhood. At present, they are enjoying the government aid and getting proper education for occupation and gradually adjusting themselves in the main stream of living.

Cultural programme – After the whole day's hard life, both male and female assemble and passes their time by performing music and dance centering a fire place and they dream for the good days to come in the nest. The famous Santali festival is called Baha and Sahabaha.

2.4.3 Occupation of Tribal people

The means of subsistence of tribal people of India is fruit collection from forest, agriculture, animal husbandry. At present, with the support of government professional development has been started for them.

Agriculture – Generally Jhum cultivation is practiced among them. They often use the marshy lands on the bank of the rivers for cultivation.

Collector – Tribal people used to collect several jungle oriented items for meet up their daily livelihood. For example, wood for making huts and fuel, honey, fruits and hunt different small animals generally found in the forest. But when the British Government took over the right of the jungle and declaired for preservation, then they started to revolt.

Animal husbandry – They earn their livelihood by rearing cow, goat, sheep, pig etc. Other than this duck and chicken are also reared.

Small Industry – The tribal people also earn through small industries as for example – they achieve different skills on different types of cottage industries through training, supported by the government. These are pottery, jute industry, mat weaving, cane industry and busket industry.

Other Occupation – At present, government promote them to learn in their own language, as well as they may achieve the general education also. In an addition, they enjoy the benefits of reservation in employment. So, the learned tribals hold the responsable post in government as well as in private sectors.

2.4.4 Jhum Farming

In the State of North Eastern hilly region of India like Nagaland, Mizoram, Manipur, Arunachal Pradesh, one type of primitive practice of cultivation was found is called Jhum cultivation – means shifting cultivation. The people involved in such cultivation are called Jhumia.

The practice of cultivation involves clearing wide areas of land / hill slopes covering vegitative or forest, drying and burning it before monsoon starts and cropping on it there after. After harvest this land is left fallow till it becomes fertile enough for cultivation. Mean while the process is practiced in a new plot identified for Jhum cultivation during the next year. The reason is that the primitive people did not know the process of irrigation system in the agricultural field.

However, with increase in human population and increasing demand of land, Jhum cycle reduced progressively causing problem of land degradation and threat to ecology of the region at large. Jhum cultivation is minimised in seven states of North Eastern Region as per direction of National Development Council. In this areas Watershed Development Project in Shifting Cultivation has been taken up. Gradually the practice of Jhum farming is approaches to demolish in near future.

2.4.5 Revolt of Tribal against forest Occupation during colonial rule

Revolt of Tribal : From the begining of 1900 century tribals and aborigin tribals started revolt against British rule in different region in India. In the north-east of India The Khasi revolt cropped up in 1830. The Britishers controlled that revolt by pressing very strong repression measure. Before that Chakmas also revolt in hilly regions of Chatgaon.

Kol Revolt : In 1831-32 Evicted from the land and jungle the Kol tribals revolt against the British company and did not agree to pay the excessive tax and fortune of the money lenders. This revolt spreads over Ranchi, Hazaribag Palamou and Assam too. Other tribals like Ho, Oraon, Munda also joined them. They burnt out some firm-houses of out-siders also.

Earth born Revolt : In 1832, right after Kol Revolt, the tribals of Manbhum revolt under the leadership of Ganganarayan gathering all Earth-born Tribals against the excess tax pressed by Dewan Madhab Singh.

Santhal Revolt : This is the main revolt among many stray revolt occured time to time. In 1855 the area of Santhal Pargana, Bhagalpur, Birbhum and some parts of Murshidabad risen and revolt against the rich money-lenders who grabed the lands of Santhals and evicted by taking the oppertunity of their simplicity in life. Gradually they were made to landless and poor forced labourer.

To end this henious act of torture the Santhal revolt took place under the leadership of Sidhu and Kanu by which British Raj was frightened and a large contingent of British soldiers were deployed to defuse the revolt and controlled.

Bhill Revolt : When East India company occupied the Khandesh region of Southern India the Bhill Tribal of that area revolt against British from 1818 to 1831 continuously. Southern part of Rajsthan and remote area of North-Western Gujrat were also effected by this revolt. But Britishers controlled with heavy hand all these revolts.

Check your progress

a) State the role of map in upper primary levelof teaching.

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b) How many divisions are found in India according to the physical variations? What are those?

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c) Who was Birsa Munda? Why he is famous?

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d) What is Jhum Cultivation?

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2.5 Let us Sum up

In this lesson of Social Study the main two subjects Geography and History is selected which are indispensable.

From primary and upper primary level the use of map is very important. That is discussed in the first chapter.

Second and third chapter included two compulsory concepts on History for upper primary learners.

Through natural diversity the livelihood of Indians varies but they become enrich through the interaction among them and develop unity, friendship, humanity.

In last chapter we find the livelihood of tribals and know in details about their honesty, the expansion of education, hardshipness, patriotism, value of independence etc. which tends to develop and fulfil their life.

2.6 Unit End Exercise

1. Answer the following questions within 50 words.

a) How do we feel the diversity pertaining to the race?

b) How was the rural life of tribals?

c) Describe the religious life of tribals.

2. Answer the following questions within 150 words.

a) How do diversity make our life rich?

b) Describe in brief the story of Birsa Munda.

c) What were the occupation of tribals?

3. Answer the following questions within 250 words.

a) What is the meaning of diversity in unity?

b) Explain the causes of anti-forest revolution of tribals during British colonial rule.

2.7 Answer hint to check your progress

a) Write with example the names of different types of map used in class teaching.

b) Tribal freedom fighter. See the story of Birsa Munda.

c) One type of agricultural practise found generally in the N-E hilly regions of India, among the tribals.

Unit - 3

Assessment in Social Studies

3.1 Introduction

In the field of teaching, one of the most important part of duties of a teacher is Assessment, because success or failure of teaching depends on it. In the field of Social Studies this Assessment of Evaluation is done through different techniques. The definition, objectives, characteristics and usefulness of evaluation – everything is discussed in this lesson. The different tools and techniques used in Evaluation is also described.

Some times some tests are used in the class room teaching, called Evaluation, again continuous and Comprehensive Evaluation is also done. All these are discussed in this chapter.

3.2 Approaches to Assessment in Social Studies

(i) After teaching different topics of SocialStudies, we generally use the term Assessment to decide our success or failure. The importance of Assessment is gradually increasing through out the world. In the field of social study, Assessment is done by using different Evaluation techniques.

The objectives of teaching is to help the learners by preparing lesson plans, practice and exercise in their need for developing their skills. Formative Evaluation is followed in this stage.

(ii) Definition, Purpose, Characteristics and need of Evaluation

Definition : Evaluation in its broader concept includes examination of academic and examination of Non-academic aspects of education. The term 'evaluation' is a newly introduced term. In examination and measurement the emphasis is given upon the academic subjects only whereas evaluation includes all the changes that take place in the development of a balanced personality. According to Mudallior commission– "Evaluation includes not only scholastic achievement, but also non-scholastic areas like attitudes, interests, ideals, ways of thinking, health, work habit, personal and social adaptiveness."

Purpose of Evaluation : The purpose of evaluation in teaching Social Studies are –

a) To determine how much the aims of teaching Social Study become effective.

b) To determine the effectiveness of the acquired knowledge of Social Study.

c) To assess the conditions of teaching-learning.

d) To determine the areas of application of the acquired knowledge.

e) To determine, whether proper interest, attitude is developed or not through learning.

Characteristics of Evaluation :

- Evaluation is a continuous process.
- Evaluation includes Academic and Non-Academic subjects.
- Evaluation is a procedure for improving the Product.
- Discovering the Needs of an individual and Designing Learning Experiences.
- Evaluation in Terms of Purpose.
- Correlation between the Educational system and the system of Evaluation. It is always with reference to the objectives of a particular system of education.

iii) Tools and Techniques of Evaluation in Teaching Social Studies

Evaluation has to be very comprehensive in a system of education which aims at the many-sides development of the personality of a child. The schools of today concerns itself not only with the intellectual persuits but also with the emotional and social development of the child, physical and mental health, his social adjustment and other equally important aspects of his life. For total evaluation of social study different types of tools and techniques are applied according to the syllabus of different classes those are as follows :

a) **Activity based :** at the time of class teaching the teacher will follow different types of activities for different topics in Social Studies. For example – for history teaching charts, time-line, for geography teaching maps drawing and or pointing, showing pictures of mountains, hills etc. are to be used.

b) **Observation of local region :** By observing old architecture, temple/ mosque/ church, or soil or flora and fauna of the local areas, the learners become interested about these components of social studies.

c) Prior determination of abilities would help teacher of social studies to evaluate the learners easily. If they do not succeed properly, remedial teaching is to be offered.

d) In social study classes the principles, from known to unknown, from concrete to abstract is followed.

e) In the case of Evaluation, the teacher should follow a particular text book which is concerned for class teaching.

f) For social study evaluation, at the time of exercise, formative evaluation and remedial teaching would continue at a time. Otherwise the learners remain weak in the subject.

g) In the presentation stage of social study, easiest method should be followed. According to the class, age and intelligence level of the learners — story telling method, observation and discussion method, interaction method is used. Then the results of evaluation becomes good.

h) **Evaluation Techniques :** There are four techniques — (i) Test, (ii) observation, (iii) expression of openion, (iv) Reflection.

(i) Test : It is one of the important techniques in Evaluation for measuring the learning of the learners.

(ii) Observation : Evaluation is possible through minute observation and study the subject matter.

(iii) Expression of opinion : Through receiving the answers of any questions, the interest, attitude, personality may be evaluated. From interview, diary, auto-biography, the opinions may be understood.

(iv) Reflection : In this type of test, some materials, pictures or sentences are presented and ask to react. Through the reaction of the learners different characteristics like landuage, interest, easiness, consciousness are ro be measured.

Achievement test

The type of ability test which describes what a person has learned to do is called an achievement test. A classroom teacher depends upon the achievement tests for measuring the progress of his / her students in his / her subject areas i.e. social studies.

Purpose of Achievement test – Achievement tests are used in the classroom for the following purpose :

- Tests help to evaluate wheather the objectives of education are being achieved.
- To monitor student's learning and to provide on-going feedback to both teacher and taught during teaching learning process.
- To discover backward children who need special care and remedial instruction, as well as to select talented children for special classes & courses.
- To determine the general level of achievement of a class and thus to judge the teaching efficiency of the teacher.

Steps of preparing Achievement test :

(a) Determining the purpose of testing.

(b) Developing test specifications (i) An outline of the course content is to be prepare. For example, from this text book, unit 2B – The concept of diversity is taken for analysis :

Sub unit - 1	Diversity of India on the basis of caste, religion and area
Sub unit - 2	How Indians become developed through diversity.
Sub unit - 3	The phenomenon of unity in diversity observed in India.

(ii) A list of instructional objectives also include here. These are knowledge, comprehension, application and skill. Here we will take the selected sub-units for specific examples.

From sub-unit 1 : The learners will

- Memorise the Natural divisions of India (K)
- They can differentiate the appearence of different races. (C)
- They can prepare a list of local people of different religions. (A)
- They can point out different conventional signs, showing different religious places on the local mauza map. (S)

(c) Preparing blue print : Within this include a balanced selection of essay type, short answer type and objective type questions, the score values of which are 5, 2 and 1 respectively.

Three more types mark divisions also to be prepared here.

(i) Weightage to instructional objectives

Instructional objectives	Number	%
Knowledge	12	48
Comprehension	5	20
Application	4	16
Skill	4	16
Total	25	100

(ii) Weightage to Sub-unit

Sub-unit	Number	%
Sub-unit - 1	5	20
Sub-unit - 2	9	36
Sub-unit - 3	11	44
Total	25	100

(iii) Weightage to types of questions

Types of question	Number	%
Essay type	5	20
Short answer type	16	64
Very short answer type	4	16
Total	25	100

Blue-print on the basis of the above three tables is as follows :

objectives	Knowledge			Comprehension			Application			Skill			
Sub-unit type type	Essay ans. type	Sh. ans.	V. Sh type type	Essay ans. type	Sh. ans.	V. Sh type type	Essay ans. type	Sh. ans.	V. Sh. type type	Essay ans. type	Sh. ans.	V. Sh Number	Total
Unit - 1		(2) 4							(1) 1				5
Unit - 2		(1) 2			(2) 4			(1) 2				(1) 1	9
Unit - 3			(1) 1		(1) 2				(1) 1	(1) 5	(1) 2		11
Total No.		7			6			4			8		25

Direction for blue-print :

Essay type, Sh. ans. type – Short answer type, V. Sh. ans. type – Very short answer type.

Here the numbers within bracket represent the number of question and that outside bracket represent total marks of the question.

The next step is preparing relevant test items : This includes the following steps :

(i) Matching the test items with the learning outcome.

(ii) Selecting most representative items.

(iii) Preparing test items which are of proper difficully level.

(iv) Avoiding all possible barriers in test items which prevent examinees from responding.

(v) Avoiding providing any clues to answers which may help examinees to answer correctly.

The next step is Administering the test : The test should be administered in an appropriate physical and psychological environment.

Next, scoring the test may be done mechanically or manually depending upon the situation. All Examiners along with Head Examiners will decide it.

Next grading is to be decided as follows : 8o and above – A Grade
60 -79 – B Grade
40 - 59 – C Grade
< 40 – D Grade or unsuccessful.

3.3 Continuous and comprehensive Evaluation - CCE

The objectives of continuous and comprehensive evaluation is to fulfil the attempts of achieving the cognitive, affective and Psychomotor types of behaviourial changes of learners and feed back classes to be provided in their need.

For evaluation, CCE is divided into the following types. These are :

(a) Instant evaluation – Used in class teaching by asking question to the learners.

(b) Unit end evaluation – After completion of an unit some tests are made and necessary feed back classes may be arranged in need.

(c) Periodical evaluation – At present the academic session is divided into three periods like quarterly, half yearly and annual.

(d) Formative evaluation – It is practiced as per desire of the teacher.

(e) Summative evaluation – At the end of the session it is organised.

Importance of CCE :

(i) CCE helps in the development of the learners.

(ii) It helps to fulfil the aims of the learners.

(iii) It helps to the total development of the learners.

(iv) It encourage self learning.
(v) It helps to determine the credit of the learmer.
(vi) The proper teaching aids and techniques are applied in class teaching.
(vii) It removes the defects of readable subject matter of the learners.
(viii) It increases the ability of the learners and also development of skills in co-curricular activities.

The duties of teachers for realistic application of CCE :

(1) the teacher would prepare blue-print and test items.
(2) The teacher would note down the problems and possible solutions in a diary.
(3) The individual profiles are to be prepared for every learners for note down their development.
(4) The proper techniques are used for contructive evaluation.
(5) The gradation is provided for intellectual and non-intellectual children.
(6) Rating is provided for personal and social evaluation of the learners.

CCE Card

CCE Card has to be prepared for note down the learner's total development from the first day of the school starts. As a result all the teachers would select methods of teaching to be applied on that learner.

Check your Progress

a) Write the characteristics of Evaluation in brief.

.....

.....

.....

b) In how many parts the Evaluation techniques are divided for CCE? What are those?

.....

.....

.....

3.4 Let us Sum up

The Evaluation in Social Studies is used generally for determination of success and failure of learning. So the definition, objectives, characteristics and utilities are discussed here. The Evaluation techniques are also discussed for the teachers. The discussion about achievement test is discussed in details. Lastly the definition and process of CCE is discussed.

3.5 Unit End Exercise

Answer the following questions within 150 words :

a) Discuss in brief the techniques of Evaluation in the field of Social Studies.

b) Explain the significance of CCE.

3.6 Answer hint to check your progress

a) There are nine characteristics in the book. answer in your own language.

b) 4. see the book

Practicum

- Visit to Archeological site and preparation of Report :

The practical work of History and geography under social studies is very effective. A visit to an archeological place develops the historical experience. The total activities of educational field work is divided into three phases —

(A) Pre field work

(B) Field work

(C) Post field work or Reporting

A. a) In the pre field work, site to be selected.

b) The activities in the field to be devided.

c) The grouping of the students and work distribution has to made.

d) Extra teachers and other escorts are to be selected.

e) Questionare is designed and distributed among the students.

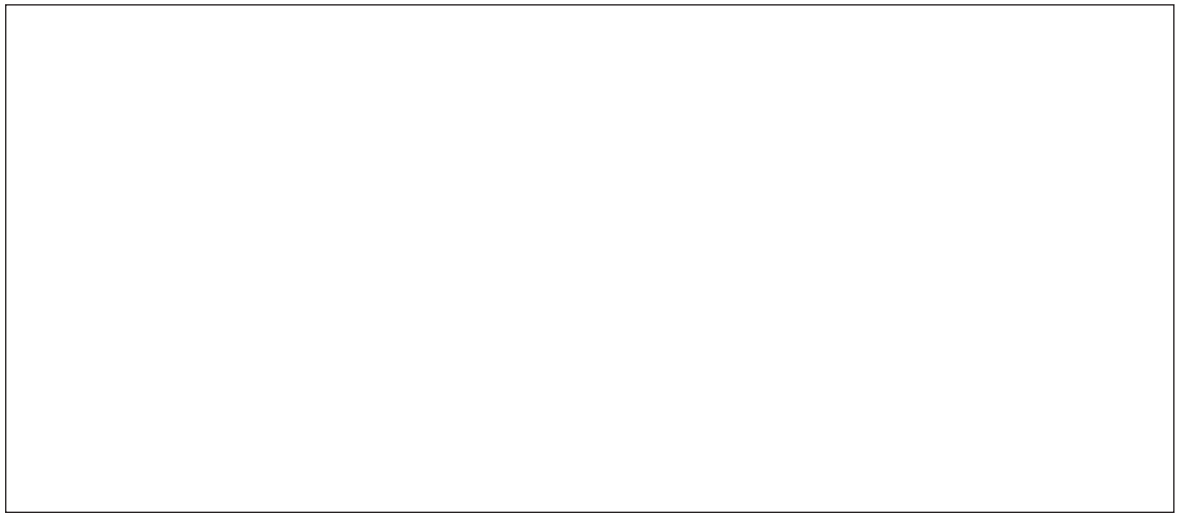
B. a) Systemetic observation of the areas of field work would be done by each group of students and group leaders.

b) Data collection, spot sketching, photography or collection of local made materials — used in daily life of the local people.

c) Morning refreshment and Lunch to be provided to the students & others.

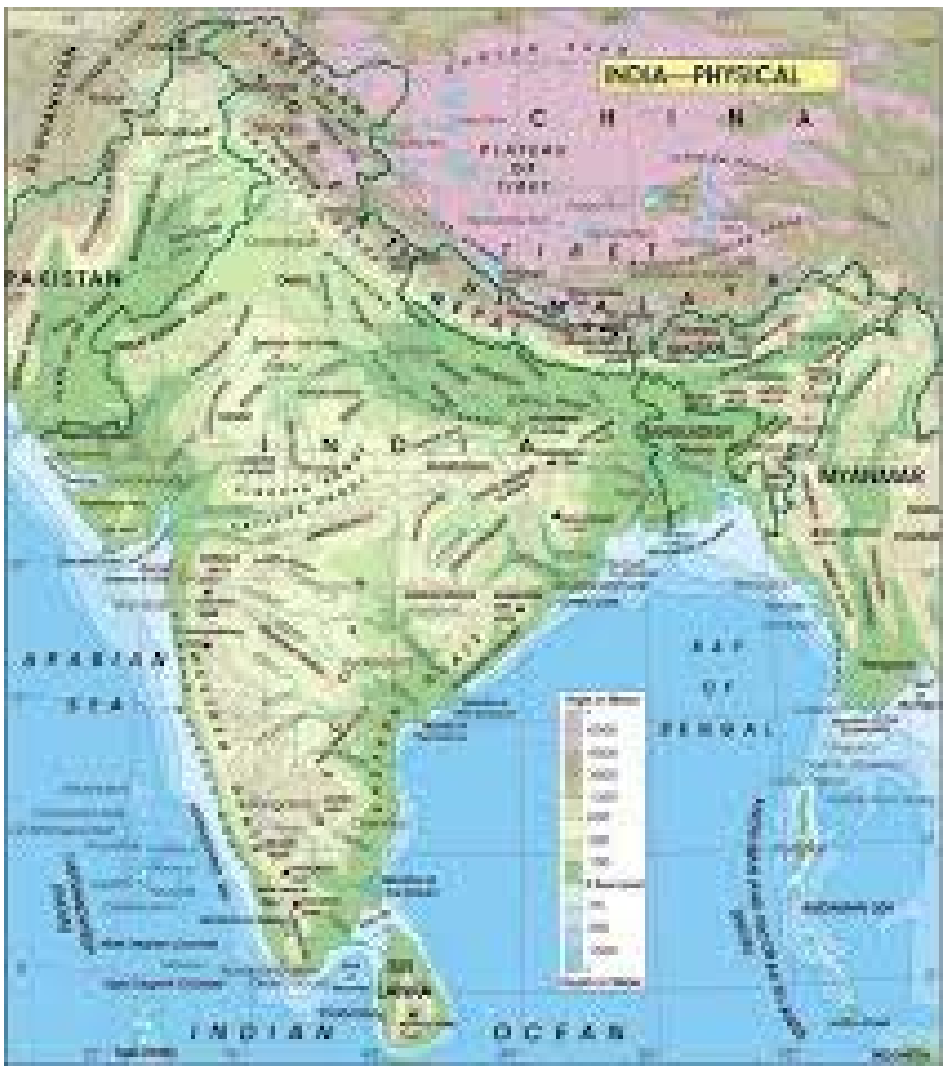
C. On the next working day in the Social study class reports would be prepared with the help of the teachers. The students would draw the conclusions with the help of the subject teacher along with their own opinions and throughts sharing by interaction method.

Preparation of guide map of one's locality



Learners will draw the guide map on the given space of their own locality by the help of the teacher.

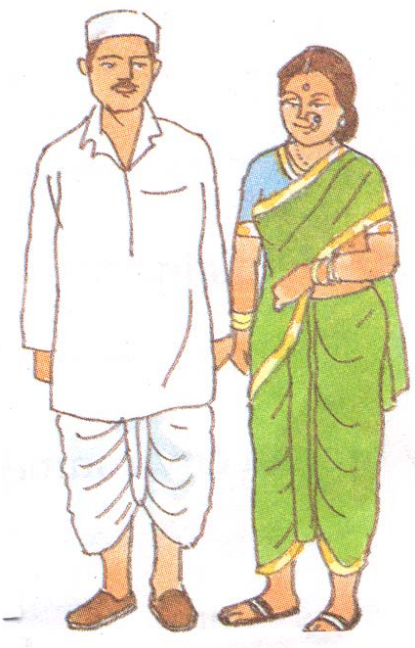
Collection of pictures relating to diversity of India :



Diversity of indian Dress

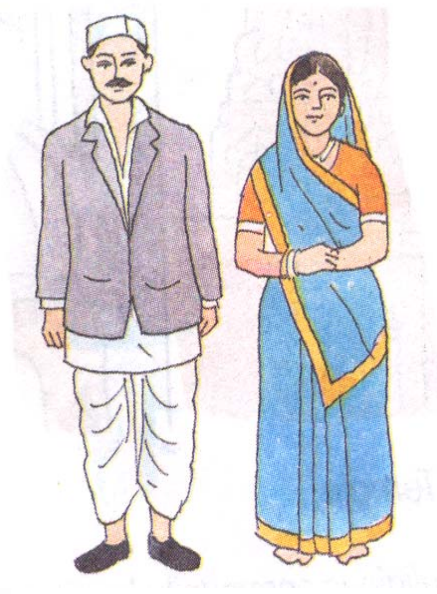
Dress of W.B.

Kasmiri Dress



Maharastrian Dress

Tamil Dress

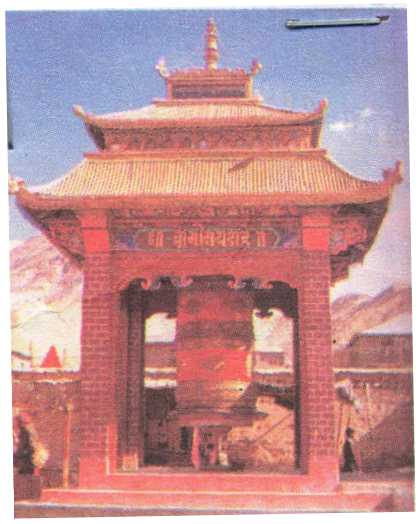


Gujrati Dress

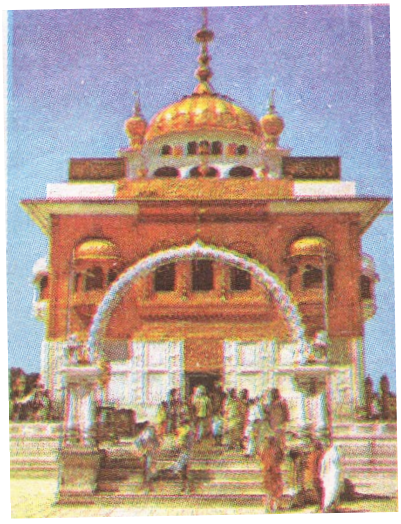
Naga Dress

Indian Religious Diversity

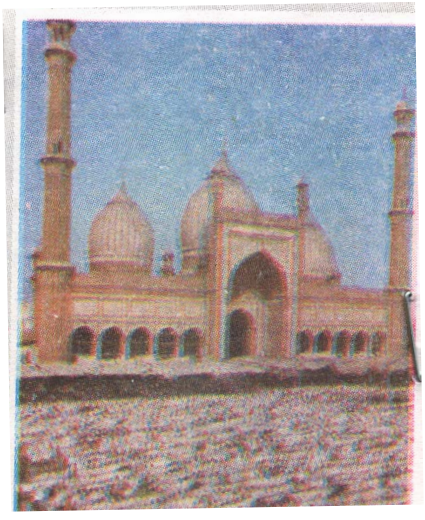
Hindu Temple



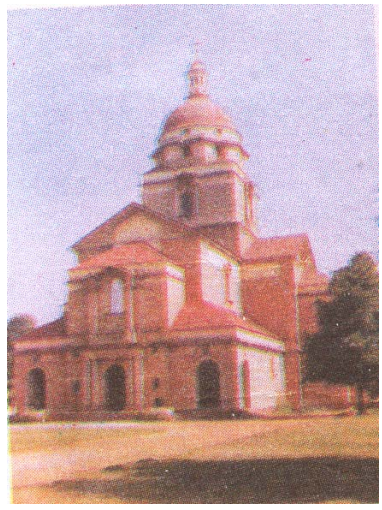
Buddhist Temple



Gurudwar



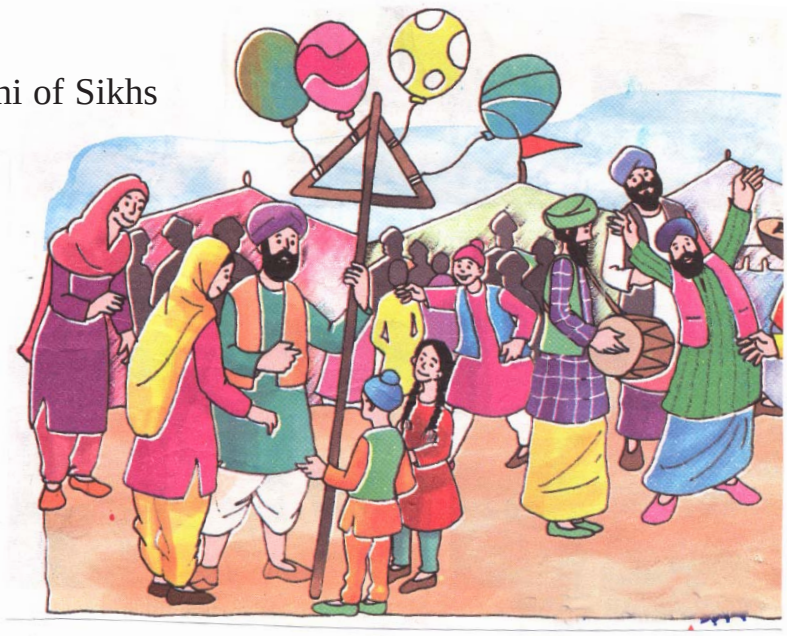
Mosque



Church

Durgotsav of Hindu

Baisakhi of Sikhs



Id Festival of muslims

X-mas Festivals of Chirstians

Conventional signs with descriptions :

A. Boundary and limits

1. International Boundary
   - (a) Without pillar
   - (b) With pillar.
2. State Boundary
   - (a) Marked
   - (b) Un-marked
3. District Boundary
4. Sub division
5. Pargana Boundary
6. Forest Boundary
7. Village Boundary
8. Forest with fencing
9. Boundary in the middle of the river

B. Pillar, Heights and Survey

10. Boundary Pillar
    - (a) Surveyed
    - (b) Indefinite
    - (c) Three way crossing of village.
11. Trialngular survey station with height 400
12. Spot height
    - (a) With definite height ·300
    - (b) With indefinite height ·300
13. Bench mark
    - (a) Godetic ·BM60
    - (b) Tertiary ·BM60

C. Topography

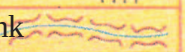
14. Contour lines
    - (a) Shape of relief
    - (b) Rocky slope
    - (c) Broken slope
15. Sandy relief
    - (a) Sand plain
    - (b) Surveyed sand dune
    - (c) Moving sand dune

D. River and Tank

16. Perrinial river
17. Non-perrinial river
18. Course of River
19. Irregular river
20. Canal
21. River bed covered with sand
22. Dry river with water ditch
23. River with island & rocks
24. Tidal river
25. Water falls with height
26. cascade
27. River bank
    - (a) 3-6 mt ht.
    - (b) above 6 mt ht.
28. Sub-merged rocks.
29. Shallow submerged plain
30. Murshy land
31. Grassland covered with water
32. Natural pond
    - (a) Filled with water through out the year
    - (b) Dry
    - (c)With concrete imbankment (4mt.)

33. Man made pond
(a) Perpetual water
(b) Temporary water
(c) Perpetual water with embankment

34. Broken land along the river bank



E. Vegetation

35. Forest
(a) Reserved — RF
(b) Protected — PF

36. Garden
(a) without fence

(b) with fence

37. Tea Garden

38. Plant of Betel leaf.

39. Grass land

40. Bush

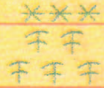
41. Palm tree

42. Palm type tree

43. Banana tree

44. Cane

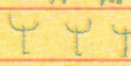
45. Pyne & fur tree



46. Coniferous tree

47. Bamboo

48. Cactus



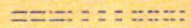
49. Other trees

50. Kitchen garden

F. Transport and Communication

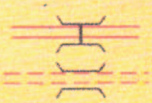
51. Metalled Road
(a) National Highway — NH_6
(b) State Highway
(c) Dist. Highway

52. Unmatalled road



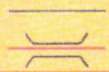
53. Metalled road with milestone •40

54. Road over the bridge
(a) Metalled road with piller
(b) Unmatalled road with piller



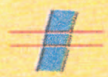
55. Foot Path

56. Cart road
(a) Without bridge
(b) with bridge



57. Road for beast of burden

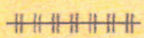
58. Concrete road on shallow river bed
(a) Concrete road on shallow river bed



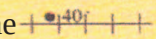
(a) Footpath on shallow river bed

59. Broad Gauge Railways
(a) Double line
(b) Single line with stn.
(c) Under construction

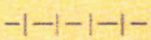
60. Other Gauge Railways
(a) Double line



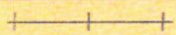
(b) Single line with milestone



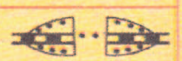
(c) Under construction



61. Tram line



62. Rl. lines through turnels



63. Broad Gauge Railways on river bridge
(a) With piller

(b) Without piller

64. Rail ways & Road on river bridge

65. Ferry for crossing the river

66. Floating bridge on boat

67. Telegraph or Telephone line

68. Level crossing

69. Water body or embankment beside road
    (a) Concrete
    (b) Made by mud

70. Embankment
(a) Road with concrete embanment
(b) Embankment with river bank

71. Unmetalled road on river

72. Metalled road beside river

G. Settlement

73. Rope way

74. Small village with small settlement

75. Large village or town with settlement
    (a) Without boundary
    (b) With boundary wall

76. Abandaned

77. Fort

78. Hut
    (a) Permanent
    (b) Temporary

79. Watch Tower

80. Old architecture

81. Temple

82. Mosque

83. Church

84. Pagoda

85. Idgah

86. Burial-ground

87. Cementry

88. Light House

89. Light ship

90. Buoy
    (a) Lighted
    (b) Without light

91. (a) Mine -M
    (b) Quarry Qr

92. Anchor

93. Post office PO

94. Telegraph office TO

95. Post & Telegraph PTO

96. Police Station PS

97. Duck Bunglow DB

98. Inspection Bunglow IB

99. Rest house (Forest dept.) RH

100. Circuit house CH

101. Chymni Chy

102. Camping ground CG

103. Market Mar

104. Naga land NĀGA

105. KIKRI KIKRI

H. Others

106. Well
    (a) Concrete
    (b) non-concrete

107. Tube well

108. Spring

109. Rifle Range

110. Pipe line.

Indian Freedon fighter Birsa Munda

Agitator Birsa Munda

Maping local Resoures like river, canal etc.

The learners will prepare a map of their own areas with the help of their teacher showing river, canal, pond, agriculturals field, garden of fruits and flowers and boundaries of the area.

Documents of Indian Women Freedom Fighter

Heroic woman Pritilata Waddedar

Born – In 5th May 1911. Parents - Jagat Bandhu & Prativa Debi

Birth Placc – Chittagaon, Dhal Ghat village

Education – Passed B.A. with Philosophy in 1932.

Occupation – Head Mistress in Nandan Kanan girls school.

Revolutionary activities :

- In 1929 came in touch with revolutionaries.
- 1932, 13 th June, Meeting with Surya Sen & Nirmal Sen and joined directly in revolution.
- 1932, 24th September, Played leadership role to plunder the armorry in chitagung. On that night she was arrested but escaped by sucide.

Heroic Women Matangini Hazra

Born – In the year of Bengali 1277.

Birth Place – Medinipur district.

The aims of revolutionary activities —

- In 1932 she tried to capture the Tamluck P.S. with a procession holding a National Flag in hand and died by the firing of a British Police.

Hiranmayee Devi

Born – 1893
Died 30th Oct, 1973

During 1905 through 'non cooking' movement and uses of only indian native staff she got herself devoted into patriotism related activities at the time of anti partition movement in india. In 1930 she was jailed for Picketing. In 1939 she was inspired by Netaji's ideology and joined in 'Forward Block'. She was an active participant in Quit India Movement on 1942.

Labanya Prava Dutta

Born – 1888
Died 6th June 1971

She actively participarted in the movements of boycutting the code of law. With the support of her freedom fighter daughter Sovarani Dutta she establised a social institution named 'Anandamath'. During the period of 2nd world war (1940-45) she served in the capacity of president of Bangiya Pradeshik Congress Committee.

Prafulla Nalini Brahma

Born – 22nd Feb. 1914
Died 22nd Feb. 1937

In her student life she inclined to join the revolutionary group of Lalit Mohan Burman. Tripura Zilla student union was formed by her. On 14th December 1931. Magistrate stevens, Kumilla was killed by two members, Santi and Suniti of the above said group. Prafullas Nalini acused and arrested in this case. While in prison, she suffered from Appendix infection and passed away without treatment.