**MODULE-4**

**4.1 AIMS AND VALUES OF TEACHING NATURAL SCIENCE**

**AIM and OBJECTIVE**

Generally, the terms “Aims’ and ‘Objectives’ are taken as synonymous terms, but in a deep sense both differ significantly.

AIM is a distant goal which is not immediately attained or reachable, but can be realised with the help of certain planned activities.  They are the broad goals of education which may not be achieved in the classroom.

Eg:- “Self realisation” is the destination or goal towards which education tries to lead the learner.  This is not a goal that could be immediately realised neither it is fully realisable, however long we try for it.  In other words, it is a distant goal to which we move.

OBJECTIVE is an immediate goal that can be realised with the help of definite planned activities.  In other words, it is a specific and immediate goal attainable as a result of classroom teaching.  An objective defines what we are trying to accomplish by teaching.  It is the terminal behaviour expected of the pupils at the conclusion of a period of learning.

Eg:- Understanding the meaning of a formula in science or the ability to apply a formula to solve a related problem.

There are three different levels of objectives, namely:-

1. Institutional objectives for schools and colleges.
2. Instructional objectives for each separate course of instruction.
3. Specific objectives or specific outcomes of learning (SOL) or specifications.

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| Institutional Objectives | Broad, general goals |
| Instructional Objectives | More precise, but are too board to define very precisely |
| Specific Outcome of Learning or Specific Objectives | Specific, precise, narrow and observable |

**DIFFERENCE BETWEEN ‘AIMS’ and ‘OBJECTIVES’**

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|  | **AIM** |  | **OBJECTIVE** |
| 1 | Aim is a distant goal. | 1 | Objective is a short term goal. |
| 2 | They are directional, but broad and general. | 2 | Specific ie, clear and precisely defined. |
| 3 | Aim can be achieved by thorough long term planning. | 3 | They are the end point of the possible achievement ie, the terminal behaviour expected from the pupils at the end of a period or instruction. |
| 4 | Aims include objectives. | 4 | Objective come from aim whose attainment are the steps to the achievement of aims. |
| 5 | Aim involves all-round development of an individual and is beyond the scope of the school. | 5 | Objective are specific, immediate and change is brought in learner during an instructional hour. |
| 6 | Aim is the answer to the question of 'why' a subject is taught. | 6 | It is an answer to the question of 'what' will be achieved after the teaching of that particular topic. |
| 7 | Aims are close to the 'ideals' which cannot be fully achieved | 7 | Objectives are achievable completely. |
| 8 | School as well as society are responsible for their achievement. | 8 | The school is responsible for their fulfilment.  |
| 9 | Aims cannot be changed from subject to subject.  Eg:- Self realisation  | 9 | May be changed from subject to subject.  Eg :- Understanding the meaning of a formula in science. |

In short, objectives originate from aims and the attainment of each objective takes us one step forward in the achievement of aim.

**General Aims of Teaching Science**

The following aims were recommended by the All India Science Seminar which was held in Simla.

* Arousing love for Nature.
* Developing habits of observation, exploration, classification and systematic way of thinking.
* Developing powers of manipulation and creativity.
* Development of neat and orderly habits.
* Inculcation of the habit of healthful living.
* Acquisition of a fund of information concerning Nature.
* Developing ability to generalise and apply knowledge in everyday life.
* Developing hobbies.
* Inspiring children with stories of inventions and discoveries.

Besides the above mentioned aims the following aims also should be kept in mind while teaching science.

* Better understanding of the nature of science
* Development of scientific attitude.
* Development of interest and appreciation.
* Acquisition of skills.
* Training in scientific method.
* Helping the pupils adjust themselves better with the society.
* Helping the pupils develop suitable career interests.
* Preparing the children for good citizenship.

**Criteria for the selection of objectives**.

Thurber and Collette, have suggested the following criteria for the selection of objectives:-

1. Usefulness: - The objectives should have value in the daily life of the pupils.
2. Practicability: - It should be practicable ie, feasible for application.
3. Fitness: - The learning should fit into a sequence leading towards broad objectives.
4. Timeliness: - Learning should be concerned with material familiar at the present time.
5. Appropriateness: It should be appropriate for the maturity and background of the pupils.

**While formulating objectives of teaching science, the following points should be kept in mind:**

* The nature of the learner, the subject and the society.
* The Psychology of learning and instruction.
* The philosophy of education.
* Influence of science and technology on human life.
* Socio-cultural conditions of the contemporary society.

**Educational Objectives and Instructional Objectives**

**Educational Objectives**

An educational objective is a statement of expected results.  It is a statement of what the students should be able to do at the end of learning.

According to E. J. Frust, “An educational objective may be defined as a desired change in behaviour in a person that we are trying to bring about through education.”

**Instructional Objectives**

All instruction will result in learning which in turn bring about changes in the behaviour of the learner.  So by instructional objectives we mean the anticipated behaviour changes, ie, what the teachers expect as a result of their teaching.  Therefore, an instructional objective is a level of mental growth, which the teacher expects his/her students to reach, by being exposed to learning activities.  It is the terminal behaviour expected from the pupils at the conclusion of a period of learning or instruction.

**Difference Between Educational Objectives and Instructional Objectives**

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|  | **Educational Objectives** |  | **Instructional Objectives** |
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| 1 | It is a broad concept. | 1 | It is specific in nature. |
| 2 | It is based on Philosophy and Sociology | 2 | It is based on Psychology |
| 3 | All school subjects may have common educational objectives. | 3 | Each school subject has specific instructional objectives. |
| 4 | Educational objective include instructional objective.   Example :- Development  of character, emotional and national  integration. | 4 | Instructional objective form a part of educational objective.  Example :- Knowledge, Comprehension etc. ie, (Objectives come under different domains) |