

TEACHING OBJECTIVES OF LIFE SCIENCE AT SCHOOL LEVEL

Like other subjects as science, art and social studies, the teaching of biological sciences is arranged in schools with the objective of optimum behavioural changes with a view to their development and progress. These behavioural changes are brought about in all three aspects-cognitive, affective and conative (psychomotor).

While determining the objectives of biological sciences teaching the desirable changes have to be analysed as related to the three aspects of behaviour, which can be attained by the teaching of biological sciences. When we analyse the teaching objectives in relation to the behavioural changes, we also classify them into certain groups, as cognitive, affective, experimental, skill-related interest, viewpoint and aesthetic objectives. The determination of teaching objectives of biological sciences at school level is generally done as follows:

1. **Knowledge or Cognitive Objectives :** With the study of biological sciences, the students gain knowledge about their terms. facts, concepts, definitions, laws, theories and processes.

The students have to attain the knowledge of the following chiefly :

- (a) Technical terminology and knowledge of facts of biological sciences.
- (b) The knowledge of fundamental theories and processes of biological sciences.
- (c) The knowledge of natural processes.
- (d) The knowledge and mutual dependence of animals and plants.
- (e) The knowledge of origin and development of animals and plants.
- (f) The knowledge of biology and its similarity to the functional system of human body

2. **Understanding or Affective Objectives:** By the study of biological sciences, the students gain knowledge about the related terms, facts, concepts, definitions, laws, theories and processes.

Different biological facts are mutually related. On the basis of the available facts, the students generalize and propound theories, such as:

- (a) Plants make food in the presence of carbon dioxide gas, water, light and chlorophyll.
- (b) There are several similarities among animals and plants of different species.
- (c) Plants release oxygen gas into the atmosphere in the photosynthesis process.

3. **Application or Conative Aspect:** Having attained knowledge of biological sciences, the students use the knowledge of related facts, laws, theories and process and their understanding in the following things:

- (a) In day-to-day activities.
- (b) In acquiring related experiences in other fields and professions.
- (c) In gaining higher knowledge and understanding in biological sciences.

(d) In confronting new and unknown situations/problems on the basis of old and known ones.

4. Skill Objectives

In the modern times, the teaching of biological sciences is chiefly aimed at developing different skills in the students by which they can resolve the daily life problems for their further improvement. Different skills are as follows:

- (a) Solving problems
- (b) Finding out skill of use of terms of scientific method.
- (c) Attainment of ability of generalization on the basis of different facts.
- (d) Attainment of skill in observation.
- (e) Attainment of skill in experiments for the verification of different facts.
- (f) Attainment of skill for drawing diagrams.

Development of Various Abilities : Ability to identify different animals and plants and their classification, ability to dissect different animals and plants, ability to plant home garden, etc.

By the study of biological sciences, the students become able to acquire the following types of skills and proficiencies:

1. **Manipulative Skills :** They acquire manipulative skills. The student acquires capability and ability related to different types of practical, action oriented and project-related tasks and tools.

2. **Diagram :** The students acquire different skills related to making of different types of diagrams, figures, shapes, copies, graphs, etc.

3. **Inference** The students acquire the ability to draw suitable inferences and generalize from different types of experiments and testing.

4. **Minute Observation :** The students acquire different skills related to dissection and minute observation, such as:

(a) Selection of specimens for dissection or minute observation

(b) Fixing of specimens for definite objective,

(c) Selection and skillful use of suitable tools for dissection or minute observation of selected specimens.

(d) Separation of parts or limbs without causing any damage to the Specimens for study.

(e) Display of the parts of specimens cleanly and suitably for demonstration

(f) Maintaining record of the facts gathered from the dissection and observation, and draw inferences and generalize.

5. **Gathering** : They acquire ability to gather and safe-keep the genetic materials of different types such as:

(a) Mounting of permanent or temporary type, and

(b) Making of slides of different types.

6. **Mathematical Skills**: To acquire the mathematical skills for resolving numerical problems related to biological sciences.

5. Objectives related to Interest

The study of biological sciences beget in the students respect for the biological world. This study enables the students to develop attraction and interests in them.

Their interest in the type of biological world can be measured from the following types of behaviours :

(a) To take interest in books and literature related to biological sciences.

(b) To ask questions during teaching and related discussions of biological sciences.

(c) To cooperate suitably in the setting up of aquarium, and like projects

(d) To cooperate in the setting up of biological science garden or park

(e) To attempt to know about the biologists and their contribution, and to study the literature related to it.

(f) To show interest in tourism related to biological sciences so that practical knowledge can be acquired.

(g) To display interest in the collection, preservation and maintenance of study material related to biological sciences.

(h) To take interest in performing different hobbies as related to biological sciences.

Development in scientific interest provides assistance in the following activities:

(a) Study of literature and articles related to biological sciences.

(b) Love for nature.

(c) Observation of animals and plants.

(d) Study of life sketches of biologists and scientific discoveries.

(e) Organisation of biological club, scientific fairs, different programmes on different problems, etc.

6. **Attitude or Aptitude Objectives:** The study of biological sciences assist in the development of the following types of aptitude in the students

(a) Adoption of positive attitude toward the study and use of biological sciences.

(b) Development of scientific attitude and aptitude for acquiring knowledge and skills in order to face realities of life.

A student armed with scientific attitude has the qualities of curiosity, truthfulness, change of prejudices on the basis of available results, not being orthodox, objectivity, etc. It is possible to make efforts for the development of these qualities continuously

7. **Appreciation Objectives:** By the study of biological sciences, help is got to produce aesthetic and encouraging feelings in the students. The evidence of this can be got from the behavioural display of the students of the following types:

- (a) To admire the contribution of biological sciences in the progress and development of individual and society
- (b) To admire the great inventions and discoveries and related contributions done by biologists.
- (c) To admire the role of biological sciences in making the human life healthy and happy
- (d) To acquire and admire the knowledge of the following types:
 - (i) Mutual dependence between plant world and animal world and admire them
 - (ii) Functioning of nature
 - (iii) Balance present among different components of nature.
 - (iv) Microorganisms and their significance in our life.

Developing Scientific Attitude and Scientific Temper

One of the main objectives of the teaching of biological sciences remains to inculcate scientific attitude and scientific temper in students so that they can understand the prevailing situations, perceive the problems and work scientifically to resolve them as science remains the sole hope for resolving the manifold problems that the world is confronted with today.