

Approaches/Integrated Approach in Science

Organization of Science Curriculum

- In formal school education curriculum is the major means to impart knowledge and skills. Different scholars have defined it in different ways.
- **According to Cunningham**, “The curriculum is a tool in the hands of artist (teacher) to mold his material (pupils) according to his ideals (objectives) in his studio (school).
- **According to P. Samuel**, “The curriculum is the sum total of the experiences of the pupil that he receives through the manifold activities that go on in the school, in the classroom, in the laboratory, in the library, on the playground, in the workshops & seminars, & in the numerous informal contacts between teacher & pupils.”
- The major issue in the field of education today is organizing science curriculum in an effective manner. Therefore, there are two major approaches regarding organization of science curriculum viz. **Disciplinary Approach & Integrated Approach.**

(a) Disciplinary Approach

- This approach is also known as the **subject approach or the traditional approach**. As each subject is separately taught by the teacher in the area of the particular subject in question.
- For Example, example science was traditionally taught as a subject with different compartments such as physics, biology, and chemistry as separate components of the science subject.
- This approach is based on the premise that, the subject is a store house of facts, methods, theories, concepts & generalizations.
- In disciplinary approach the focus is more on the subject & its content rather than the process.

Characteristics of Disciplinary Approach:

1. **In-depth Conceptual Knowledge:** Every subject has detailed and in-depth conceptual knowledge.
2. **Disciplinary based teaching:** Each subject is taught as a separate discipline.
3. **Content based teaching:** The teaching of disciplinary based curriculum largely based on content.
4. **Source of knowledge/information:** In disciplinary approach the teacher is the main source of knowledge / information.
5. **Main purpose:** The main purpose of disciplinary approach is to prepare specialist, scientists etc.
6. **Mastery of the subject:** The learner is expected to master the subject matter.
7. **Chalk & talk based teaching:** This approach mostly leads to chalk & talk based teaching.
8. **Text book is main authority:** This approach restrains student observations, values or conclusions different from the text book which is the main authority in disciplinary approach.

8 Months Subscription

CTET 2020
KA MAHAPACK

Live Classes, Video Courses,
Test Series, e-Books

Bilingual

Importance of the disciplinary approach:

1. **Expert in the subject:** This approach develops expertise in particular subject
2. **Subject Growth:** The disciplinary approach fosters the growth of the subject.
3. **Time Saving:** Disciplinary approach is very time saving in terms of course completion.
4. **Detailed Conceptual Understanding:** The disciplinary approach of organizing science curriculum provides detailed conceptual understanding of the subject.
5. **Theory building:** The disciplinary approach is very useful in building theory in particular subject/discipline.
6. **Higher level thinking:** As in disciplinary approach the subject is store house of theories, concepts, generalizations etc. This lead to higher level thinking.

Limitations:

1. **Less opportunity for creativity:** The disciplinary approach does not provide many opportunities for students' creativity.
2. **Dropout:** Disinterest in particular subject / discipline may lead to dropout.
3. **Require expert teachers:** The disciplinary approach requires highly knowledgeable & expert teachers.
4. **Less Scope of socialization & social skills:** Isolated teaching reduces the scope of socialization and social skills.

(b) Integrated Approach

- “An integrated approach allows learners to explore, gather, process, refine and present information about the topics they want to investigate without the constraints imposed by traditional subject barriers.” (Pigdon & Woolley, 1992)
 - Integrated approach encourages student to see the interconnectedness and interrelationships between the different curriculum areas. Instead of focusing on learning in isolated curriculum areas, an integrated approach is based on skill development around a particular theme that is relevant to students of a particular class.
 - The curriculum set up of science at primary level i.e. general science is an example of integrated approach. Following are the ways of integration
- a. **Cross disciplinary approach:** This approach examine an issue typically relevant to one discipline through the lens of another discipline.
 - b. **Multi-disciplinary approach:-**This approach examines an issue from multiple perspectives, without making a concerted effort to systematically integrate various disciplines.
 - c. **Inter-disciplinary approach:** This approach examines an issue from multiple perspectives, leading to a systematic effort to integrate the alternative perspectives into a unified or coherent framework of analysis

TEST SERIES

Bilingual



UP B.Ed JEE
Online Test Series
(SCIENCE STREAM)

5 Full Length Mocks

Characteristics of Integrated approach:

1. **Wide conceptual knowledge:** Integrated approach provides an opportunity for broader & wider conceptual knowledge.
2. **Child-centered teaching:** Integrated approach promotes child centered teaching
3. **Integration of skills with contents:** Integrated approach of curriculum organization promotes integration of skills with contents.
4. **Teacher as a mediator:** The role of a teacher is mediator between knowledge and child.
5. **Use of modern method:** The integrated approach requires use of modern methods of teaching such as inquiry based teaching.
6. **Flexibility:** No rigid disciplines exist. Integrated approach is flexible.
7. **Preparation of future citizens:** The main purpose of integrated approach is to prepare the future citizens of a society.
8. **Openness:** The approach is open to new ideas and procedures.
9. **Multi learning Environment:** The approach requires multi learning environment such as classroom, lab, outdoor, computer, internet etc.

Importance of integrated approach

1. **Detailed conceptual understanding:** This approach helps the learner to get detailed conceptual understanding of the content.
2. **Choice based selection of subject:** Integrated approach help the students to select discipline / subject according to their own interest.
3. **Creativity:** This approach foster creativity among learner.
4. **Promotion of modern methods:** This approach promotes modern methods of teaching such as collaborative learning, cooperative learning etc.
5. **Development of self-concept & socialization:** Integrated approach helps in developing self-concept & socialization
6. **Realistic Application:** This approach has realistic applications.

Limitations

1. **Time Consuming:** Integrated approach is time consuming as a single theme analysis is done with different discipline point of view.
2. **Need of well equipped & expert teacher:** Integrated approach needs well equipped & expert teachers who are capable of using modern methods of teaching.
3. **Create confusion:** If this approach is not handled carefully then child may get confuse in various disciplines.
4. **Proper selection & organization of various disciplines:** Integrated approach needs expertise to select theme and organization of various disciplines.

12 Months Subscription

**TEACHING
TEST PACK**

Bilingual