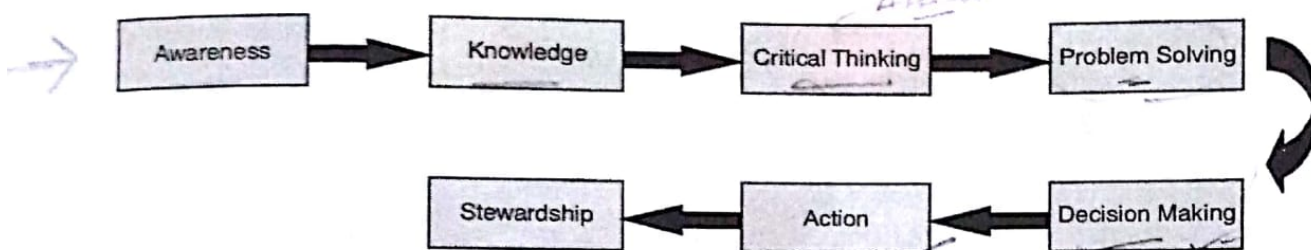


## COMPONENTS OF ENVIRONMENTAL EDUCATION

The U.S. Environmental Protection Agency defines the components of environmental education as follows:

- Awareness and sensitivity to the environment and environmental challenges
- Knowledge and understanding of the environment and environmental challenges
- Attitudes of concern for the environment and motivation to improve or maintain environmental quality
- Skills to identify and help resolve environmental challenges
- Participation in activities that lead to the resolution of environmental challenges.

The Southeast Environmental Education Alliance places the components of environmental education into a continuum representing the learning process.



Multidisciplinary and Interdisciplinary approaches constitute complete models for environmental education implementation. Both of them present environmental education content through a range of disciplines, contributing, in that way, to its holistic character. The difference between the two approaches lies in the organisation of the matter, either by means of infusion through the curriculum, or by the formation of a single subject.

## MULTIDISCIPLINARY APPROACH TO ENVIRONMENTAL EDUCATION

A multidisciplinary approach involves drawing appropriately from multiple disciplines to redefine problems outside of normal boundaries and reach solutions based on a new understanding of complex situations. A Multidisciplinary approach presents environmental matters through a range of disciplines (infusion) (UNESCO, UNEP, IEEP, Environmental Education). Environmental matters are distributed and presented through the various curriculum subjects.

Entwistle states that "Environment is presented to the students through various disciplines parted and unconnected. Knowledge and skills remain isolated in different departments". Knowledge exists in unconnected packages and students have difficulties in understanding the environment as a unity". This happens because the teacher deals with

only a few factors of the issue, (the ones connected to his/her discipline) in isolation from the others. Sterling and Cooper (1992) describing this method as one of the holistic approach methods, comment that the learners "will gain only a partial or worse distorted understanding of the issue".

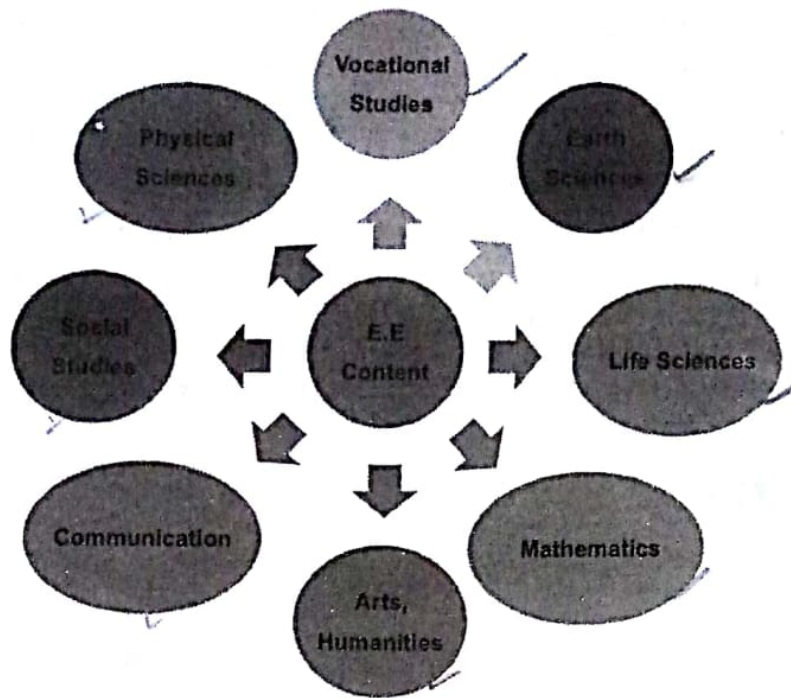


Fig 1 depicts Multidisciplinary approach to environmental education (Infusion)

The problem of the lack of curriculum coordination is resolved by the interdisciplinary approach which does provide the links between the disciplines. Within the interdisciplinary approach the content of the teaching becomes unified by using matter from various disciplines simultaneously and forming a single subject within which "Distinct subjects are abolished and replaced by an interdisciplinary form of work, i.e. activities which relate to many disciplines at the same time.

## **INTERDISCIPLINARY APPROACH TO ENVIRONMENTAL EDUCATION**

Interdisciplinary approach allows the student to learn by making connections between ideas and concepts across different disciplinary boundaries. Students learning in this way are able to apply the knowledge gained in one discipline to another different discipline as a way to deepen the learning experience.

Environmental education "fuses" the disciplines in an organised and connected way, to help students conceive a global image of the issue. In this case, the environmental (or sustainable) part of the context of various disciplines, joins to form the multi-dimensional

profile of the environmental education issue (otherwise, the various disciplines contribute to environmental education formation). We can and should form curricula that will provide opportunities for the student to place environmental education (or Education for Sustainable Development) in the proper and meaningful perspective. Warren Flint(1999) suggests that "the goal is to teach the future professionals the real need for continued examination of linkages among economic, social and environmental issues in achieving a sustainable global society through science". This will make students able to take more informed decisions. As Theophilides (1998) suggests, an interdisciplinary approach helps children learn, without cutting them off from real life, but providing them with opportunities to learn THROUGH life, through the environment, ABOUT life and finally FOR life. Although the interdisciplinary approach has many benefits as a model for the implementation of environmental education, it still has some constraints. Sterling and Cooper point out that "if the teacher deals with many factors at once, and their interrelationship, the learners may be stressed and confused by the amount of information and complexity".

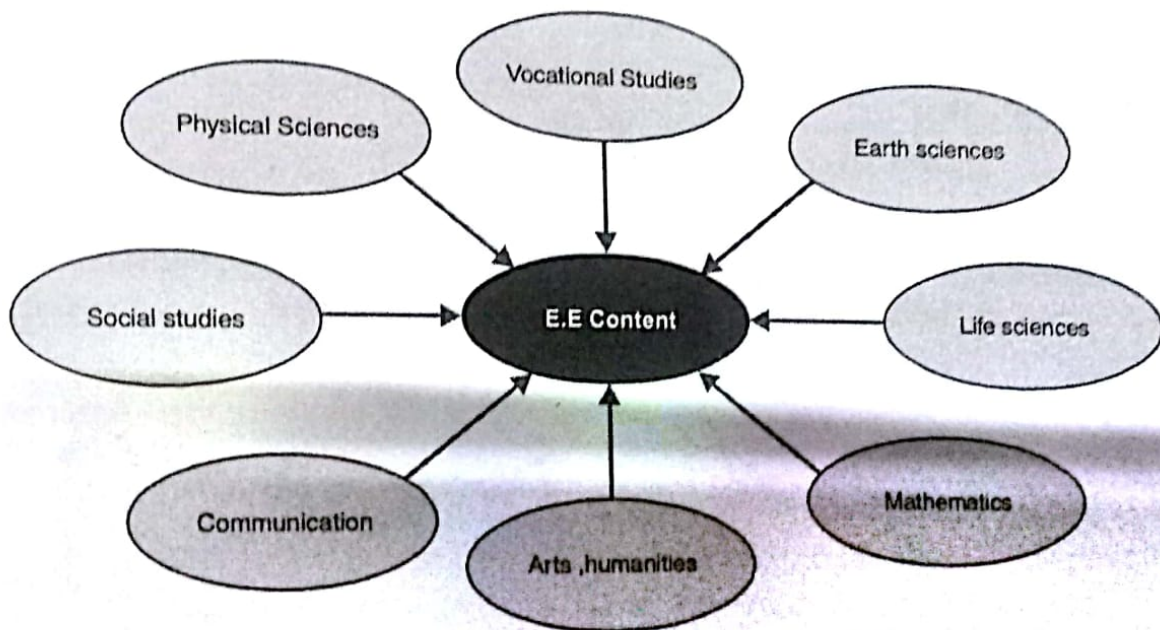


Fig 2 depicts an Interdisciplinary approach to environmental education (single subject)

The main difference between inter and multi disciplinary approach is as follow:

**Interdisciplinary Vs Multidisciplinary (infusion) formats for environmental education:**

**Advantages and disadvantages**

Considerations	Interdisciplinary (Single Subject) Characteristics	Multidisciplinary (Infusion) Characteristics

**Interdisciplinary Vs Multidisciplinary (infusion) formats for environmental education:**

**Advantages and disadvantages**

Considerations	Interdisciplinary (Single Subject) Characteristics	Multidisciplinary (infusion) Characteristics
<b>1. Ease of implementation</b>	Easier to implement as a single subject if time permits in the curriculum; teacher training is less of a problem	Requires that more teachers be trained; greater coordination of the curriculum necessary, requires less time/ content in the existing curriculum
<b>2. Teacher Competencies</b>	May require fewer teachers but with more in depth training in EE. Thus teacher training is less demanding in terms of teacher numbers but more demanding in terms of level of competencies required	Requires that all teachers from all disciplines be competent to adapt and/or use EE materials although perhaps not to the same depth as in single subject approach
<b>3. Demand on Curriculum load</b>	Requires addition of this discipline to an already crowded curriculum	May be effectively implemented with minimal demands on existing curricular load.
<b>4. Ease of Curriculum Development</b>	Components easier to identify and sequence	Components must be effectively identified sequenced and accommodated by the existing curriculum
<b>5. Evaluation</b>	A comprehensive evaluation is much easier to accomplish in a single subject curriculum	Comprehensive evaluation difficult due to the number of variables involved.
<b>6. Age level appropriateness</b>	May be more appropriate at secondary than elementary levels. For some types of EE goals may be essential at secondary and tertiary levels	Appropriate at all age levels with some exceptions at secondary and tertiary levels