

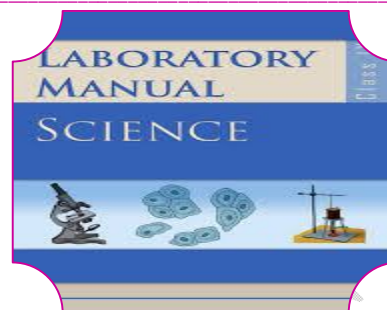


## INFORMAL OPPORTUNITY IN IX STANDARD PHYSICS TEXT BOOK FOR DEVELOPING SCIENTIFIC SENSITIVITY

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### ABSTRACT

Two world trends are vigorously reshaping human existence: the degradation, if not destruction, of large parts of the natural world, and unprecedented technological development. Majority of the environmental, social, and moral and health issues of human life arise out of our lack of responsive, caring and compassionate disposition towards various interacting elements associated with these realms. So Scientific Sensitivity refers to individuals out look towards life. Curriculum planners, has to provide informal opportunities and experiences in order to develop Scientific Sensitivity that promotes a sense of unity between humanity and environment.

**KEYWORDS:** Informal Opportunities, Scientific Sensitivity, Environmental Issues, Moral Issues.

### INTRODUCTION

Scientific Sensitivity is one of the important outcomes of science education. Scientific Sensitivity means become aware of science related issues think critically and act responsibly in relation to the ways in which science affects people's lives. Scientific Sensitivity involves being critically reflective about social, moral, environmental, and health related issues and the way in which these relate to the role of science in wealth creation.

### OBJECTIVE

- To analyze the informal opportunities in IX standard physics text book for developing scientific sensitivity.

### PROCEDURE

The IX standard Physics textbook prepared by SCERT - Kerala was selected because of the experience of the investigator in teaching and also because of the authenticity of the text book. The investigator analyzed the concepts of scientific sensitivity. The validation was done by giving the text book to resource persons who have knowledge and experience in the subject. The investigator explained the concept of Scientific Sensitivity to the resource persons and asked them to analyze the IX standard Physics text book for its inclusion of concepts related to Scientific Sensitivity. Based on suggestions of the resource persons, advice of the research supervisor, and the findings of the researcher the repeated area containing the concept of Scientific Sensitivity was considered for the analysis of the study.

Concepts containing environmental issues in the text book is detailed in the below table.

**Table 1: Contents in IX Standard Physics Text Book subsuming Environmental Issue**

S.No.	Unit	Topic	Page No.	Content	Sensitivity Domain Levels
1.	Forces of Fluids	Pascal's Law	14	<i>"Reclamation of paddy fields with an excavator is a common sight. Such activities which are harmful to the environment and bio diversity need to be controlled".</i>	Awareness about reclamation Intelligent understanding about activities that are harmful to the environment Feel to protect the environment Decision to change the activities that are harmful to the environment Responsible action to protect the environment from harmful activities.
2.	Work, Energy and Power	Major Sources of Energy	81	<i>What are the different ways in which solar energy is utilized? Based on the figure, prepare a note and write it down in your science diary. (explained with the help of concept mapping)</i>	Awareness about different ways in which solar energy is utilized. Responsible to utilize solar energy in different fields.

**Table-1 can be interpreted as follows:**

In Unit "Forces of Fluids" the topic "Pascal's law" is explained by giving learning experience of reclamation of paddy fields with an excavator. Such activities are harmful to the environment and biodiversity of the soil is destroyed and it has to be controlled. This helped the learner to create awareness about reclamation, intelligent understanding about activities that are harmful to the environment, helps them to feel to protect the environment, helps which makes them to take the decision to protect the environment and make them to take a responsible action to protect the environment from harmful activities. The findings of the study conducted by Said, Aini Mat, et al. (2007) supports the present findings.

In Unit "Work Energy and Power" the topic "major sources of energy" is depicted in a picture form of concept mapping model. This helped the learner to create awareness about different ways in which solar energy is utilized and use them responsibly. The findings of the study conducted by Sivek (1989) supports the present findings.

**DISCUSSION**

The earlier discussed topics are explained to the learners that help them to develop environmental values and awareness. Only some environmental related topics are there in the text book but more environmental related topics could be included that reflects there environmental values and helps them to keep the biodiversity of the environment and protect us from natural calamities.

Concepts containing Moral Issues in the text book is detailed in the below table.

**Table 2: Contents in IX Standard Physics Text Book subsuming Moral Issues**

S.No.	Unit	Topic	Page No.	Content	Sensitivity Domain Level
1.	Forces of Fluids	Adulteration	14	<p><i>Have you seen how the quantity of water in milk is measured? Lactometer is an instrument used for this purpose. Adulteration of milk is an offence. Using adulterated milk is harmful to our health. The lactometer which is a device to test the purity of milk is basically a hydrometer and lactometer work on the principle of floatation</i></p>	<p>Awareness about adulteration Intelligent understanding about adulteration Personalisation of adulteration Decision to change adding of water in milk. Responsible action avoid adding water in milk.</p>
2.	Refraction of Light	Eye donation	105	<p><i>“We know that the eyes as windows to the world play an important role. Have you thought about those who have lost their sight? What are the things we can do for them? We can bring at least some people who are not having eye sight to the world of light through eye donation. Any person of any age can donate eyes. Exception is the cornea of those people having certain peculiar diseases. The cornea of the donor should be harvested within 6 hours of death. Eye donation helps to fill the life of others with light by those who close their eyes forever”.</i></p>	<p>Awareness about eye donation Intelligent understanding about eye donation Realises that eye donation helps to fill the life of others with light. Personalises that eye donation helps to give light to life of others. Takes a evolutionary step to promote eye donation.</p>

Table-2 can be interpreted as follows.

In the Unit “ Forces of fluids” the topic dealing with “adulteration and how water in milk can be measured by explaining how adulterated milk is harmful to health and why it can be prevented and how it is harmful to health and lactometer is an instrument used measure the quality of milk and it works on the principle of floatation. This helped the learners in creating awareness about adulteration, intelligent

understanding about adulteration, personalizes the issue and take decision not to add water in milk and have a responsible action. The findings of the study conducted by Bajpai (1991) also support the present findings.

In the Unit "Refraction of Light" the topic "eye donation" is explained that eyes as windows to the world play an important role and eye donation helps to save the life of others those who doesn't have eye sight and donation is only to donate cornea of the eye and it should be harvested within 6 hours of death. This helped the learners to create awareness about eye donation, intelligent understanding about eye donation, realizes that eye donation helps to fill the life of others with light, personalizes that eye donation helps to give light to life of others and Makes them to take revolutionary step to promote eye donation. The finding of the study conducted by Nimai Charan Das (1991) also supports the present findings.

### DISCUSSION

The earlier discussed topics are explained to the learners that help them to develop moral values. The topics explained through moral values are very less. The learners should create awareness in moral values related issues. So that they come to realize about the moral issues and aspects related to it.

### CONCLUSION

Informal Opportunities should find place to develop Scientific Sensitivity among student learners which enable them to acquire imagination, curiosity, observation, decision making and responsible persons to majority of the environmental and moral issues of human life which arises out of our lack of a responsive, caring and compassionate disposition can be resolved. The advancement of information science and the development of information technologies affect all these aspects. All the students should aware of these kinds of issues and teachers should provide learning situation according to these issues.

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