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Let There Be Light

Guide for Curriculum Unit 87.06.08
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This unit was developed because the study of light can be fun. My own curiosity has been aroused by the new technologies that are being developed using light as the source of energy, and for the transmission and manipulation of that energy. Information about the nature of light and its technologies as well as man's perception and use of light are presented with many suggestions for hands-on activities to help understand this information. Mathematics associated with light and information about and use of some of the instruments which augment man's ability to see his world are integral parts of the unit.

A kit will be assembled at the Yale-New Haven Teachers Institute office which will contain lenses, prisms, and many useful items for simple experiments with light as well as some booklets to suggest further study in some of the areas covered by the unit. I have presented my objectives for the unit as: 1) to demonstrate the role that lighting plays in the lives of students; 2) to demonstrate what can be learned about light by the use of prisms and lenses; 3) to demonstrate the nature of wave motion; 4) to introduce the dual theory of light; 5) to demonstrate the construction and functioning of the eye; 6) to demonstrate the principles of light manipulating devices such as sunglasses, the telescope, and the microscope and how they extend the range of what man can see; 7) to present the background of today's light technology; 8) to investigate new light technologies and their promise and possible effects on the future of the students' lives. This unit necessarily can really only touch upon so many areas, but many of the activities suggested allow for further perusal of the individual areas.

My strategies would develop the hands-on activities so that students may keep small notebooks of their progress. Students will be encouraged to expand on classroom activities by drawings, readings, and experiments which are appropriate. The curiosity and special characteristics of the scientists and philosophers who contributed to the understanding of light and color should be emphasized throughout the study. Since the material is rather complex, explanatory notes, teacher demonstrations and outside resources will be utilized. The unit also leaves a great deal of leeway for individual differences in both students and teachers.

(Recommended for Earth Science classes, grade 8; Physical Science classes, grade 9; and Lower Level Physics classes)

Key Words

Mathematics Physics Light Problem Solving Light Wave Theory Physics