



Introduction

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The ten teaching units which follow were written in connection with the seminar “The Atmosphere and Ocean.” This seminar brought teachers from primary and secondary schools together with the seminar leader to discuss teaching methods related to physical processes in the environment. Two issues often entered these discussions. First is the question of how to select the specific topics to be taught, in order to appeal to the students’ natural interest in the environment, without departing from the existing (and future) curriculum guidelines for each grade level and course. Second is the question of how far one can go in replacing traditional textbook material with “experiential learning.” By experiential learning, we include laboratory experiments and classroom demonstrations, as well as independent observations of the environment. The role of direct experience in teaching is especially powerful in the atmospheric and oceanic sciences as phenomena in these spheres are evident in our daily outdoor activities.

As the reader will note, the response to these two questions varies from unit to unit. This variation arises both because the authors are teaching at different grade levels and because of their different teaching philosophies. Taken together, the units provide a broad analysis of how to teach environmental physical science to grade school and high school students. The common elements in the units are the emphasis on the process of discovery and the understanding of relationships between different natural phenomena.

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