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Curriculum Units by Fellows of the Yale-New Haven Teachers Institute  
1994 Volume V: The Atmosphere and the Ocean

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## **Integrating Mathematical Concepts in the Study of the Atmosphere and the Ocean**

Guide for Curriculum Unit 94.05.09  
by Hermine Smilke

The unit was developed to find a setting that will connect mathematics to other subject areas in the high school curriculum. It was written specifically with the advanced function group in mind. The first section discusses the concepts that are relevant to climate, weather, and the atmosphere. Topics such as the earth's energy budget, clouds and cloud formation, winds and the wind system, and the effect of the corolis force on wind direction are discussed. This section of the unit can be used as a reference source for a lesson in social studies. The second and third sections make connections between mathematics and the concepts mentioned earlier. Functions are used as the link to connect the mathematical concepts to the concepts of weather and climate.

The unit will be best used as a supplement to the textbook rather than as an independent unit in isolation. The problems discussed will be better understood only after the students have had a lesson in the mathematical concepts introduced. In other words the unit is best suited for enrichment and research exercises. The lesson plans suggest areas for further work in other curriculum areas. There is much more that can be done with the ideas suggested but the limitation in time and pages forced the selection of these ideas mentioned. It is the hope of the writer to revisit these ideas again and expand these concepts.

(Recommended for Mathematics, grades 11-12)

### **Keywords**

*Mathematics Advanced Functions*

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