

DG4 INTEGRATED MATHEMATICS AND SCIENCE: SETTING A RESEARCH AGENDA

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The objectives of the proposed discussion group are threefold: (1) Re-examine existing strands of research and frameworks in the literature on integrated mathematics and science curriculum, teaching and learning; (2) Initiate discussions around the necessary refinement of frameworks for investigating integrated mathematics and science learning; and (3) Fuel continued development around a core focus on pre-service and in-service secondary teachers. Various attempts have been made to integrate mathematics and science curricula at all educational levels for the past century (c.f. Lederman & Neiss, 1998). The integration of mathematics and science is considered a curriculum improvement strategy and is advocated in such documents as the National Science Standards (National Research Council, 1996). For instance the National Science Standards advocate that:

The science program should be coordinated with the mathematics program to enhance student use and understanding of mathematics in the study of science and to improve student understanding of mathematics. (NRC, 1996, p. 214).

As a result, much of the education literature focuses on describing curricular innovations (c.f. Lederman & Neiss, 1998) that integrate mathematics and science content areas. We perceive a need for more focused investigation of issues such as student learning, teaching, and secondary teacher preparation in the context of integrated mathematics and science curricula.

The community of researchers interested in integrated mathematics and science education needs this venue to evaluate the work already done and discuss and plan the goals and future direction of this work. Through the discussion group, we hope to form a network of researchers exploring integrated mathematics and science issues at the secondary and post-secondary levels. The long-term goal in starting this discussion group is to encourage further work toward extending existing theory to undergraduate education, developing plans to put research into practice, and following secondary mathematics teachers into their induction years.

References

Lederman, N. G., and Neiss, (Eds.). (1998) *School Science and Mathematics* 98(6).

National Research Council. (1996). *National Science Education Standards*. Washington, D.C.: National Academy Press.