

Acknowledgments

When I was asked in the summer of 1994 to develop a state framework for K-12 Science Education I agreed without really knowing what I was getting myself into. This framework was to be based on the NRC's *National Science Education Standards* (even though they would not be published for another year and a half) and to make connections between the *National Standards* and the emerging *Minnesota Graduation Standards*.

After many stops and starts, explorations of cul-de-sacs and travel on open highways, this document was developed. Publication of the *Minnesota K-12 Science Framework* is the culmination of three years of professional discussions, writing conferences, individual and group reviewing, and editing. The process itself has involved the professional development of many Minnesota teachers. It has led to ever widening circles of discussion, an explosion of e-mail, and increasingly thoughtful consideration of the ideas contained in these pages. It has affirmed my belief in the power of collaboration.

This document is largely the collective wisdom of members of the Minnesota Science Teachers Association, whose expertise and leadership were fundamental to its completion. Thanks also to members of the Minnesota Science Best Practice Network who willingly shared their knowledge and ideas as this Framework was developed and reviewed.

I wish to thank all of the educators who have given generously of their time and inspiration to create this *Framework*. One of the best parts of this process was the opportunity to work with and learn from my heroes and heroines, as well as to meet some new ones. Throughout the development of this *Framework* I have worked with many outstanding educators from across Minnesota whom I have come to admire for their talents and commitments. I am proud to be associated with and even call these professionals friends.

Special thanks to Kathleen Lundgren, Science Specialist for the Minnesota Department of Children, Families & Learning, who spearheaded the development of the *Minnesota Graduation Standards* in science and assisted in the development of this *Framework*. Her understanding of standards-based education and her talent for making connections brought Chapter Three to a higher level, and her commitment to safety in science instruction greatly influenced Chapter Six. In addition, Kathleen unstintingly arranged and lead *Framework* training through the Minnesota Science Best Practice Network and incorporated the draft *Framework* into the Phase II Graduation Standards Training held in the summer of 1997.

Thanks also to Geri Nelson, who graciously left her students for a semester to complete Chapter Six. Her countless hours on the phone ("What are the rules about using road-kill in the classroom?"), editing abilities (more commas!), and talent for working with others has led to an exemplary collection of Minnesota resources that are useful and comprehensive. Her ability to read my mind was also an asset throughout the development process.

The writing and editing skills of Ed Hessler were essential in the development of this Framework. His deep understanding of standards-based science education, professional development and systemic reform provided the guidance for discussions and writings. Countless hours were spent thinking out loud, passing drafts back and forth, and sharing comments and advice on e-mail. I even got pretty good at deciphering his handwriting! His support and friendship were critical to the completion of this Framework.

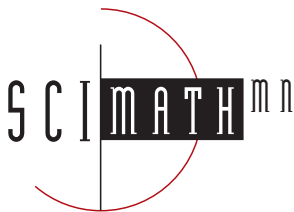
Dick Clark, former Science Specialist, is a supportive friend and colleague who provided advice and counsel throughout the project. Lunch discussions with Mike Damyanovich challenged my assumptions, gave me insights, and provided encouragement and opportunities to grow personally

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In the pages that follow, those who participated in the development of this Framework are listed. I apologize for any inadvertent misspellings or omissions. The large number of contributors from all parts of Minnesota—from writers, to reviewers, to interviewees for vignettes, to all the other tasks a framework requires—is testimony to a truly statewide effort. A large number of educators, Kindergarten through higher education, have worked collaboratively to create this document. Let's continue to work together to turn this vision of science education into a reality for all Minnesota's children.

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September, 1997



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