Preface

While taking pictures for this book, we watched as a first grader figured out that she could turn her scissors into a magnet by rubbing another magnet on the blades. As we celebrated this finding with her, she looked over and said confidently, "I guess I was just made for science." Yes, Jessie, you were made for science, and so are your teachers, although they might not know it yet.

It's funny that we often think about teaching young children as a hands-on, minds-on, emotional experience requiring choices and materials to manipulate, yet, when we think about how to help teachers move toward structures that will permit these experiences, we often give them activities and tell them what to do. As this book was created, we thought about young children learning science, and about the learners reading this book: teachers.

Just as we could give young children facts and expect them to understand science, we could give you activities and expect you to teach science. You might try a few and then go back to your normal routines. However, we want children to experience and use science throughout their lives, and we want you to do more than a few activities. We want you to make science education something you understand, feel excited about, and continue to improve. This requires more than activities. It requires knowing what science really is, knowing how children learn, and knowing the flexible structures that facilitate that learning.

This book revolves around those three ideas. Teaching science is as much about learning what it means to do science as it is about the pedagogy of teaching. In order to teach science well, you need to be, in a sense, a scientist. This book provides opportunities for you to observe, share, experiment, organize, and hypothesize not only about science content but also about teaching science and about the students you will be teaching. It describes the principles of and requirements for the active learning of science and identifies the key ingredients that should be practiced by students for their development as young scientists and as learners in general. In other words, this book is full of tools that you can use to make science in your classroom meaningful, exciting, and enduring.

The late Dr. Robert L. Egbert, who put us on the path of writing this book, said that teaching is about telling stories and asking questions. We hope you will become a learner and a reflector as you read the stories and think about the questions. We hope that you can use the tools in this book, your school district's science curriculum, and your students' ideas and interests to make science a wonderful experience in your classroom. We

hope that by the time you're done reading this book, like Jessie, you will be inspired and confident—you will believe that you, too, are "made to teach science."