



Peter C. Gega

Fourth Edition

Science in Elementary Education

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Preface

This book combines practical methods, subject matter, and activities on how to teach science to children, ages 5 to 12. It has two complementary parts. Here's how each part can help you.

Part One discusses why science education is basic to children's schooling, and explains the foundations that give it form and substance. Each of its six chapters develops a broad competency or a cluster of related teaching skills. After studying these chapters and doing several exercises, you should be able to:

- Recognize and assess differences in children's thinking.
- Use closed-ended and open-ended teaching activities.
- Improve children's thinking in several ways.
- Locate and use a variety of resources to teach science.
- Make and manage learning centers.
- Organize and evaluate science teaching.

Part Two has twelve chapters of subject matter, broad investigations, and activities—all designed with three purposes in mind. First, it helps you apply in teachable ways the skills developed in Part One. For example, the questioning methods and the open-ended and closed-ended strategies presented in the early chapters are demonstrated in hundreds of in-context examples. This is also true of suggested thinking skills. An early chapter on learning centers shows how to quickly and easily convert scores of investigations in Part Two for that function. So following through on these and other methods is strongly emphasized.

Second, Part Two gives you hundreds of lively and interesting concrete experiences to use with children. These are in two forms: activities and investigations. The *activities* offer a wide spectrum of firsthand experiences through which children may learn concepts and procedures needed to solve problems. The *investigations* offer opportunities for you and your pupils to inquire, as co-investigators if you wish, into problems and topics. Both kinds of learning experiences typically use everyday, easy-to-get materials. They can also be incorporated compatibly into most any school science program. (A complete inventory of investigations and activities follows the Contents.)

The third purpose of Part Two is to present understandable explanations of subject matter that can help you where you may feel lacking in background. These are tied to the learning experiences and give useful, everyday examples of science concepts and principles at work. Of course, you can build a good subject-matter background as you investigate with children. But I believe you'll also find that the context each presentation weaves will make it easier for you to guide children confidently and creatively.

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(*Note to College Science Methods Instructors:* An instructor's manual is available for this text. Contact your local Wiley representative or Education Editor, John Wiley and Sons, Inc., 605 Third Ave., New York, N.Y. 10158.)

Peter C. Gega

Inventory of Investigations and Activities

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PART ONE

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