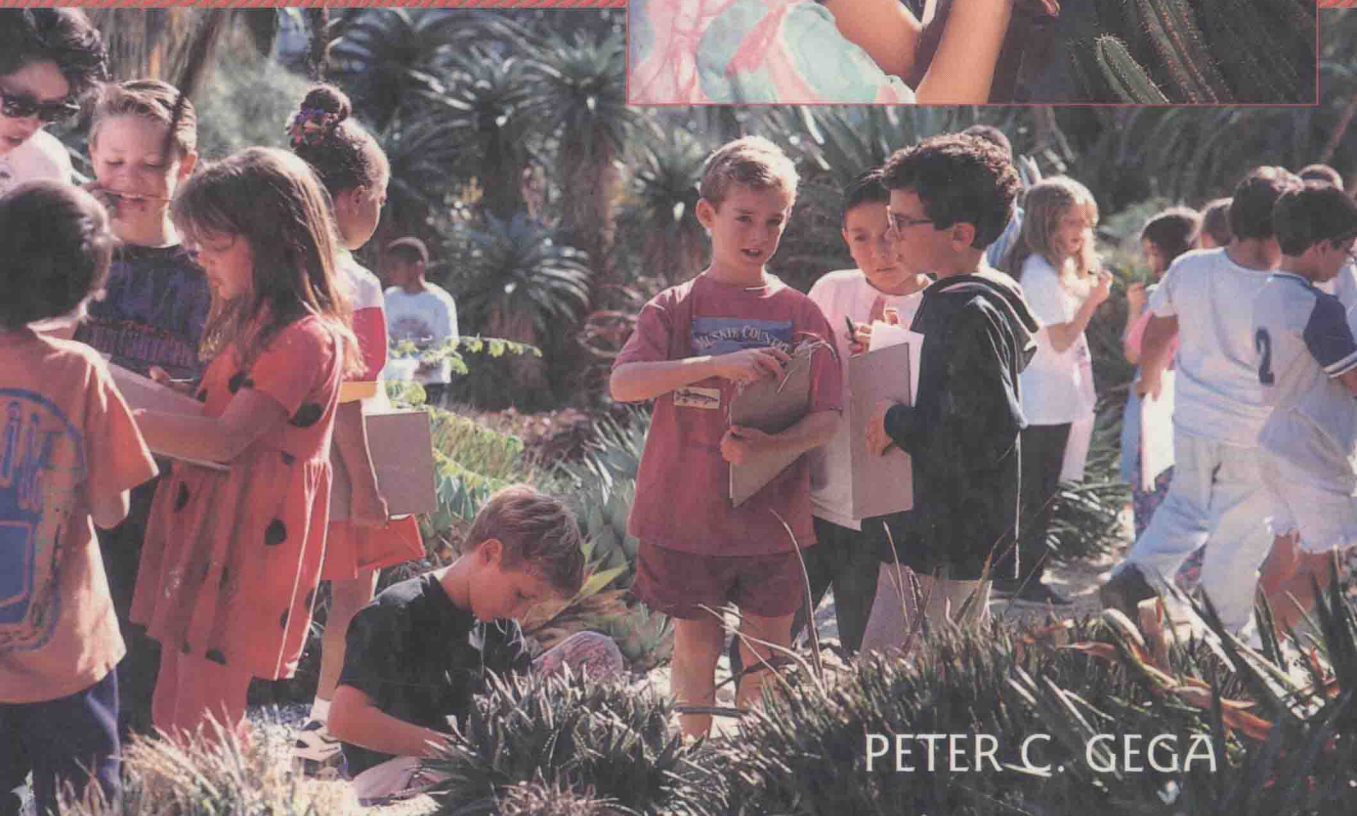


# SCIENCE IN ELEMENTARY EDUCATION

SEVENTH EDITION



PETER C. GEGA

SEVENTH EDITION

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# 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.

Part I takes up why science education is basic to children's schooling and explains the foundations that give it form and substance. Each of its seven chapters develops a broad competency or a cluster of related teaching skills through step-by-step descriptions and use of many real-life examples. (Incidentally, all the examples reflect my personal teaching experiences or firsthand observations with elementary schoolchildren.) The chapters and several included follow-up exercises should enable you to

- Decide what science is basic, useful, and learnable for children.
- 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.
- Arrange and manage learning centers, microcomputer centers, and projects.
- Organize and assess science teaching.

Part II has 12 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 I. For example, the questioning methods and the open-ended and closed-ended strategies in the early chapters are shown in hundreds of in-context examples. This is also true of suggested thinking processes. Early sections on learning centers and projects show how to quickly and easily convert many investigations in Part II for those uses. So following through on these and other methods is strongly emphasized.

Second, Part II gives you hundreds of lively and interesting concrete experiences to use with children. These are in two forms: activities and investigations. The *activities* offer firsthand experiences through which children may learn concepts and procedures. The *investigations* offer chances for you and your pupils to inquire, as co-investigators if you wish, into open-ended problems and topics. Both kinds of learning experiences use every-day, easy-to-get materials and can also enrich school science programs. (A complete inventory of investigations and activities follows the Contents.)

The third purpose of Part II is to give plain talk explanations of subject matter that can help you where you may feel lacking in background. These are tied to the learning expe-

riences 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 explanations will make it easier for you to guide children confidently and creatively.

Thanks are owed to many people in the preparation of this seventh edition of *Science in Elementary Education*. I especially appreciate the

help given to me by Christine Ebert, University of South Carolina; John P. Huntsberger, University of Texas—Austin; Linda Cronin Jones, University of Florida; Ernest W. Lee, University of North Carolina—Greensboro; and Nedra C. Sears, East Central University. I believe that their many practical suggestions have notably increased the value of this latest edition.

*Peter C. Gega*

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