

About This Book

Navigating through Geometry in Prekindergarten–Grade 2 is the first of four grade-band books that demonstrate how some fundamental ideas of geometry can be introduced, developed, and extended. The introduction to the book provides an overview of the development of geometric concepts in prekindergarten through grade 12, and the four chapters that follow focus on the important ideas of geometry.

Chapter 1 deals with two- and three-dimensional shapes; chapter 2 introduces methods to describe location and position; chapter 3 introduces simple transformations like flips and turns as well as the related concepts of line symmetry and rotational symmetry; and chapter 4 deals with visualization, spatial reasoning, and the building and drawing of constructions from different perspectives.

Each chapter begins with a discussion of the important ideas and the expectations for students' accomplishment by the end of grade 2. This discussion is followed by student activities that introduce and promote familiarity with the essential ideas. At the beginning of each activity, the recommended grades are identified and a summary of the activity is presented. The goals to be achieved, prerequisite knowledge, and the materials necessary for conducting the activities are also presented. Some of the activities have blackline masters, which are signaled by an icon. These worksheets are identified in the materials list and can be found—along with the solutions for them—in the appendix. They can also be printed from the CD-ROM that accompanies the book. The CD, also signaled by an icon, contains applets for students to manipulate and resources for professional development.

All the activities have the same format. Each consists of three sections: “Engage,” “Explore,” and “Extend.” The “Engage” section presents tasks designed to capture students' interests. “Explore” presents the core investigation that all students should be able to do. “Extend” provides additional activities for students who demonstrate continued interest and who want to do some challenging mathematics. Throughout the activities, questions are posed to stimulate students to think more deeply about the mathematical ideas. After some questions, possible responses are shown in parentheses. Margin notes include teaching tips, copies of blackline masters, and quotations from *Principles and Standards for School Mathematics* (National Council of Teachers of Mathematics [NCTM] 2000).

The discussion following each activity identifies connections to other content strands in the curriculum and to the process strands, offers insights about students' performance, and suggests ways to modify the activities for students who are experiencing difficulty or who need enrichment. Although grade levels are recommended, most of the activities can be modified for use by students in other grades in the prekindergarten–grade 2 band. Teachers should take note of the

Key to Icons



Principles and Standards



Blackline Master



CD-ROM

Three different icons appear in the book, as shown in the key. One alerts readers to material quoted from *Principles and Standards for School Mathematics*, another points them to supplementary materials on the CD-ROM that accompanies the book, and a third signals the blackline masters and indicates their locations in the appendix.

appropriateness of students' mathematical vocabulary, the clarity of their explanations, the rationale for their solutions, and the complexity of their creations in order to plan modifications for particular students.

A cautionary note: This book is not intended to be a complete curriculum for geometry in this grade band. Rather, it should be used in conjunction with other instructional materials.