



## Table of Contents

About This Book
Introduction
Chapter 1
Characteristics and Properties of Shapes9
Geodee's Sorting Scheme
Exploring Triangles
Exploring Similar Figures
Dilating Figures
Using Venn Diagrams to Reason about Shapes
Midsegments of Triangles
Reasoning about the Pythagorean Theorem
Reasoning about the Lythagorean Theorem
Chapter 2
Coordinate Geometry and Other Representational
Systems
Constructing Geometric Figures in Coordinate Space
Exploring Lines, Midpoints, and Triangles Using
Coordinate Geometry
Similarity and the Coordinate Plane
Exploring the Slopes of Parallel and Perpendicular Lines41
Chapter 3
Transformations and Symmetry43
Reflection of Images
Translations, Reflections, and Rotations
Using Scale Factors
Explorations with Lines of Symmetry
Understanding Types of Symmetry
Rotational Symmetry and Regular Polygons
Drawing Figures with Symmetry
Chapter 4
Visualization, Spatial Reasoning, and Geometric
Modeling59
Exploring Shapes with Tangrams
Logos and Geometric Properties
Isometric Explorations
Cross Sections of Three-Dimensional Shapes
I Took a Trip on a Train
Constructing Three-Dimensional Figures
Minimizing Perimeter
Indirect Measurement
The Race
THE Nace
Looking Back and Looking Ahead

## Geometry

## Navigating through Geometry in Grades 6-8

By David K. Pugalee, Jeffrey Frykholm, Art Johnson, Hannah Slovin, Carol Malloy, and Ron Preston

Geometry enables us to describe, analyze, and understand our physical world. It holds a central place in mathematics and is a focal point throughout all the school mathematics curriculum. The methods and ideas of geometry are indispensable components of mathematical literacy.

This book presents the study of geometry in the middle grades as a pivotal point in the mathematical learning of students. Activities focus on visualization, analysis, and informal deduction. The authors describe the van Hiele framework and how it can help improve teaching strategies and assessment.

The Navigations Series translates *Principles and Standards for School Mathematics* into action. Each book includes practical, teacher-tested activities and a supplemental CD-ROM that features applets for students' use and resources for teachers' professional development.

NCTM offers a variety of professional development opportunities that are supported by the Navigations Series and also address other mathematical subjects. Visit www.nctm.org for more information on all of NCTM's resources, including professional development offerings and publications available in the online catalog.



The Navigating through Geometry in Grades 6-8 CD includes the following:

- Blackline masters
- · Selected articles in PDF format
- Applets, and more...

System Requirements:

- Macintosh® and Windows® compatible.
- Recommended browser is Internet Explorer 5.
- Adobe<sup>®</sup> Acrobat<sup>®</sup> Reader 4 or above is required for viewing PDFs.