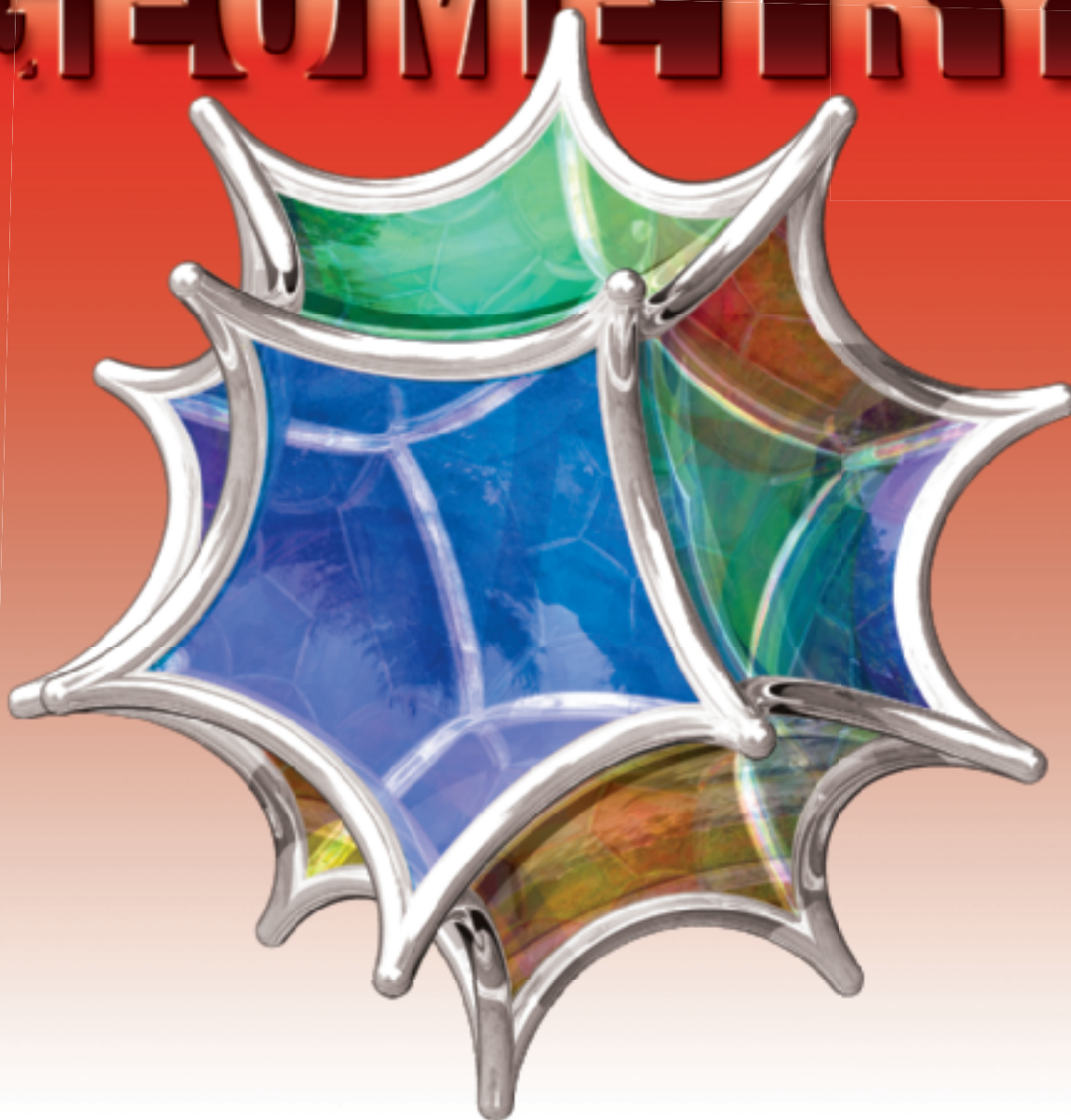


Glencoe

GEOMETRY

Aligned to the
**COMMON CORE
STATE STANDARDS**



Education

Bothell, WA • Chicago, IL • Columbus, OH • New York, NY



connectED.mcgraw-hill.com

Your Digital Math Portal

Animation



Vocabulary



eGlossary



Personal Tutor



Virtual Manipulatives



Graphing Calculator



Audio



Foldables



Self-Check Practice



Worksheets





In this Common Core State Standards edition of *Glencoe Geometry*, students are challenged to develop 21st century skills such as critical thinking and creative problem solving while engaging with exciting careers within Science, Technology, Engineering, and Mathematics (STEM) related fields.



Photo Credit:

Cover Hyperbolic Dodecahedron. By Paul Nylander (<http://bugman123.com>)

Understanding by Design® is a registered trademark of the Association for Supervision and Curriculum Development ("ASCD").

TI-Nspire is a trademark of Texas Instruments Incorporated.

Texas Instruments images used by permission.

Common Core State Standards © Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

The McGraw-Hill Companies

connectED.mcgraw-hill.com



Education

Copyright © 2012 by The McGraw-Hill Companies, Inc.

All rights reserved. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of The McGraw-Hill Companies, Inc., including, but not limited to, network storage or transmission, or broadcast for distance learning.

Send all inquiries to:
McGraw-Hill Education
STEM Learning Solutions Center
8787 Orion Place
Columbus, OH 43240

ISBN: 978-0-07-895271-5 (Student Edition)

MHID: 0-07-895271-9 (Student Edition)

Printed in the United States of America.

5 6 7 8 9 10 11 12 13 QVR 18 17 16 15 14 13 12

STEM

McGraw-Hill is committed to providing instructional materials in Science, Technology, Engineering, and Mathematics (STEM) that give students a solid foundation, one that prepares them for college and careers in the 21st Century.

Contents in Brief

Chapter 0 Preparing for Geometry

Unit 1 Geometric Structure

- 1** Tools of Geometry
- 2** Reasoning and Proof
- 3** Parallel and Perpendicular Lines

Unit 2 Congruence

- 4** Congruent Triangles
- 5** Relationships in Triangles
- 6** Quadrilaterals

Unit 3 Similarity

- 7** Proportions and Similarity
- 8** Right Triangles and Trigonometry
- 9** Transformations and Symmetry

Unit 4 Measurement

- 10** Circles
- 11** Areas of Polygons and Circles
- 12** Extending Surface Area and Volume
- 13** Probability and Measurement

Student Handbook

Authors

Our lead authors ensure that the Macmillan/McGraw-Hill and Glencoe/McGraw-Hill mathematics programs are truly vertically aligned by beginning with the end in mind—success in Algebra 1 and beyond. By “backmapping” the content from the high school programs, all of our mathematics programs are well articulated in their scope and sequence.

Lead Authors



John A. Carter, Ph.D.

Principal
Adlai E. Stevenson High School
Lincolnshire, Illinois

Areas of Expertise: Using technology and manipulatives to visualize concepts; mathematics achievement of English-language learners



Gilbert J. Cuevas, Ph.D.

Professor of Mathematics Education
Texas State University—San Marcos
San Marcos, Texas

Areas of Expertise: Applying concepts and skills in mathematically rich contexts; mathematical representation; use of technology in the development of geometric thinking



Roger Day, Ph.D., NBCT

Mathematics Department Chairperson
Pontiac Township High School
Pontiac, Illinois

Areas of Expertise: Understanding and applying probability and statistics; mathematics teacher education



Carol Malloy, Ph.D.

Associate Professor Emerita
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina

Areas of Expertise: Representations and critical thinking; student success in Algebra 1

Program Author



Jerry Cummins

Mathematics Consultant
Former President, National Council
of Supervisors of Mathematics
Hinsdale, Illinois

Areas of Expertise: Graphing Technology and Mathematics

Contributing Authors



Dinah Zike **FOLDABLES**

Educational Consultant
Dinah-Might Activities, Inc.
San Antonio, Texas



Jay McTighe

Educational Author and Consultant
Columbia, MD

Consultants and Reviewers

These professionals were instrumental in providing valuable input and suggestions for improving the effectiveness of the mathematics instruction.

Lead Consultant



Viken Hovsepian

Professor of Mathematics
Rio Hondo College
Whittier, California

Consultants

Mathematical Content

Lead Consultant

Viken Hovsepian

Professor of Mathematics
Rio Hondo College
Whittier, California

Grant A. Fraser, Ph.D.

Professor of Mathematics
California State University, Los Angeles
Los Angeles, California

Arthur K. Wayman, Ph.D.

Professor of Mathematics Emeritus
California State University, Long Beach
Long Beach, California

Gifted and Talented

Shelbi K. Cole

Research Assistant
University of Connecticut
Storrs, Connecticut

College Readiness

Robert Lee Kimball, Jr.

Department Head, Math and Physics
Wake Technical Community College
Raleigh, North Carolina

Differentiation for English-Language Learners

Susana Davidenko

State University of New York
Cortland, New York

Alfredo Gómez

Mathematics/ESL Teacher
George W. Fowler High School
Syracuse, New York

Graphing Calculator

Ruth M. Casey

T³ National Instructor
Frankfort, Kentucky

Mathematical Fluency

Robert M. Capraro

Associate Professor
Texas A&M University
College Station, Texas

Pre-AP

Dixie Ross

Lead Teacher for Advanced
Placement Mathematics
Pflugerville High School
Pflugerville, Texas

Reading and Writing

ReLeah Cossett Lent

Author and Educational Consultant
Morganton, Georgia

Lynn T. Havens

Director of Project CRISS
Kalispell, Montana

Reviewers

Corey Andreasen

Mathematics Teacher
North High School
Sheboygan, Michigan

Mark B. Baetz

Mathematics Coordinating Teacher
Salem City Schools
Salem, Virginia

Kathryn Ballin

Mathematics Supervisor
Newark Public Schools
Newark, New Jersey

Kevin C. Barhorst

Mathematics Department Chair
Independence High School
Columbus, Ohio

Brenda S. Berg

Mathematics Teacher
Carbondale Community
High School
Carbondale, Illinois

Sheryl Pernell Clayton

Mathematics Teacher
Hume Fogg Magnet School
Nashville, Tennessee

Bob Coleman

Mathematics Teacher
Cobb Middle School
Tallahassee, Florida

Jane E. Cotts

Mathematics Teacher
O'Fallon Township High School
O'Fallon, Illinois

Michael D. Cuddy

Mathematics Instructor
Zypherhills High School
Zypherhills, Florida

Melissa M. Dalton, NBCT

Mathematics Instructor
Rural Retreat High School
Rural Retreat, Virginia

Trina Louise Davis

Teacher
Fort Mill High School
Fort Mill, South Carolina

Tina S. Dohm

Mathematics Teacher
Naperville Central High School
Naperville, Illinois

Laurie L.E. Ferrari

Teacher
L'Anse Creuse High School—
North
Macomb, Michigan

Patricia R. Frazier

Mathematics Department Chair/
Instructor
Celina High School
Celina, Ohio

Steve Freshour

Mathematics Teacher
Parkersburg South High School
Parkersburg, West Virginia

Shirley D. Glover

Mathematics Teacher
TC Roberson High School
Asheville, North Carolina

Caroline W. Greenough

Mathematics Teacher
Cape Fear Academy
Wilmington, North Carolina

Michelle Hanneman

Mathematics Teacher
Moore High School
Moore, Oklahoma

Theresalynn Haynes

Mathematics Teacher
Glenbard East High School
Lombard, Illinois

Sandra Hester

Mathematics Teacher/AIG Specialist
North Henderson High School
Hendersonville, North Carolina

Jacob K. Holloway

Mathematics Teacher
Capitol Heights Junior High School
Montgomery, Alabama

Robert Hopp

Mathematics Teacher
Harrison High School
Harrison, Michigan

Eileen Howanitz

Mathematics Teacher/
Department Chairperson
Valley View High School
Archbald, Pennsylvania

Charles R. Howard, NBCT

Mathematics Teacher
Tuscola High School
Waynesville, North Carolina

Sue Hvizdos

Mathematics Department
Chairperson
Wheeling Park High School
Wheeling, West Virginia

Elaine Keller

Mathematics Teacher
Mathematics Curriculum
Director K–12
Northwest Local Schools
Canal Fulton, Ohio

Sheila A. Kotter

Mathematics Educator
River Ridge High School
New Port Richey, Florida

Frank Lear

Mathematics Department Chair
Cleveland High School
Cleveland, Tennessee

Jennifer Lewis

Mathematics Teacher
Triad High School
Troy, Illinois

Catherine McCarthy

Mathematics Teacher
Glen Ridge High School
Glen Ridge, New Jersey

Jacqueline Palmquist

Mathematics Department Chair
Waubonsie Valley High School
Aurora, Illinois

Thom Schacher

Mathematics Teacher
Otsego High School
Otsego, Michigan

Laurie Shappee

Teacher/Mathematics Coordinator
Larson Middle School
Troy, Michigan

Jennifer J. Southers

Mathematics Teacher
Hillcrest High School
Simpsonville, South Carolina

Sue Steinbeck

Mathematics Department Chair
Parkersburg High School
Parkersburg, West Virginia

Kathleen D. Van Sise

Mathematics Teacher
Mandarin High School
Jacksonville, Florida

Karen Wiedman

Mathematics Teacher
Taylorville High School
Taylorville, Illinois

Online Guide

connectED.mcgraw-hill.com

The eStudentEdition allows you to access your math curriculum anytime, anywhere.

The icons found throughout your textbook provide you with the opportunity to connect the print textbook with online interactive learning.

Investigate



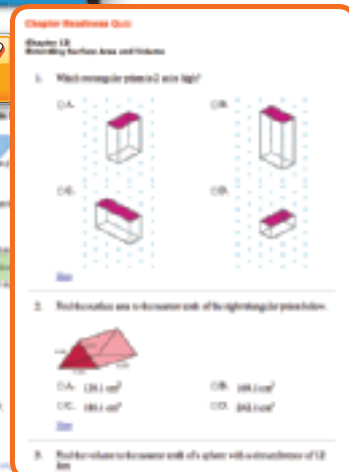
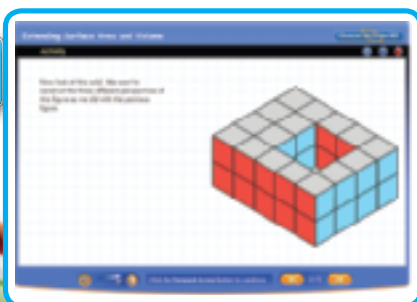
Animations
illustrate math concepts through movement and audio.



Vocabulary
tools include fun Vocabulary Review Games.



Multilingual eGlossary
presents key vocabulary in 13 languages.



[illegible]



Common Core State Standards

With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy. — Common Core State Standards Initiative

What is the goal of the Common Core State Standards?

The mission of the *Common Core State Standards* is to provide a consistent, clear understanding of what you are expected to learn, so teachers and parents know what they need to do to help you. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills needed for success in college and careers.

Who wrote the standards?

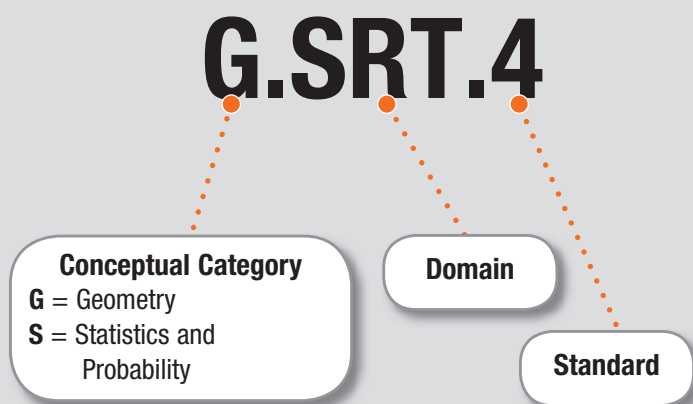
The National Governors Association Center for Best Practices and the Council of Chief State School Officers worked with representatives from participating states, a wide range of educators, content experts, researchers, national organizations, and community groups.

What are the major points of the standards?

The standards seek to develop both mathematical understanding and procedural skill. The *Standards for Mathematical Practice* describe varieties of expertise that you will develop in yourself. The *Standards for Mathematical Content* define what you should understand and be able to do at each level in your study of mathematics.

How do I decode the standards?

This diagram provides clarity for decoding the standard identifiers.



Domain Names	Abbreviations
Congruence	CO
Similarity, Right Triangles, and Trigonometry	SRT
Circles	C
Expressing Geometric Properties with Equations	GPE
Geometric Measurement and Dimension	GMD
Modeling with Geometry	MG
Conditional Probability and the Rules of Probability	CP
Using Probability to Make Decisions	MD

Preparing for Geometry



Get Started on Chapter 0 P2



**Mathematical
Content**

■ **Pretest** P3

0-1 Changing Units of Measure Within Systems P4

0-2 Changing Units of Measure Between Systems P6

0-3 Simple Probability P8 S.MD.6, S.MD.7

0-4 Algebraic Expressions P10

0-5 Linear Equations P11

0-6 Linear Inequalities P13

0-7 Ordered Pairs P15

0-8 Systems of Linear Equations P17

0-9 Square Roots and Simplifying Radicals P19

■ **Posttest** P21

connectED.mcgraw-hill.com

Your Digital Math Portal



Vocabulary
p. P8



**Multilingual
eGlossary**
p. P2



Personal Tutor
p. P4



Foldables
p. P2

1 Tools of Geometry



Get Ready for Chapter 1	3	Mathematical Content
1-1 Points, Lines, and Planes	5	G.CO.1
<i>Extend: Geometry Lab</i> Describing What You See	13	G.MG.1
1-2 Linear Measure	14	G.CO.1, G.CO.12
<i>Extend: Extension Lesson</i> Precision and Accuracy	22	
1-3 Distance and Midpoints	25	G.CO.1, G.CO.12
1-4 Angle Measure	36	G.CO.1, G.CO.12
■ Mid-Chapter Quiz	45	
1-5 Angle Relationships	46	
<i>Extend: Geometry Lab</i> Constructing Perpendiculars	55	G.CO.12
1-6 Two-Dimensional Figures	56	G.GPE.7
<i>Extend: Geometry Software Lab</i> Two-Dimensional Figures	65	G.CO.12
1-7 Three-Dimensional Figures	67	G.GMD.3
<i>Extend: Geometry Lab</i> Two-Dimensional Representations of Three-Dimensional Objects	75	G.MG.1
ASSESSMENT		
■ Study Guide and Review	78	
■ Practice Test	83	
■ Preparing for Standardized Tests	84	
■ Standardized Test Practice, Chapter 1	86	

connectED.mcgraw-hill.com

Your Digital Math Portal


Animation
pp. 13, 120

Vocabulary
pp. 78, 127

**Multilingual
eGlossary**
pp. 4, 90

Personal Tutor
pp. 37, 116

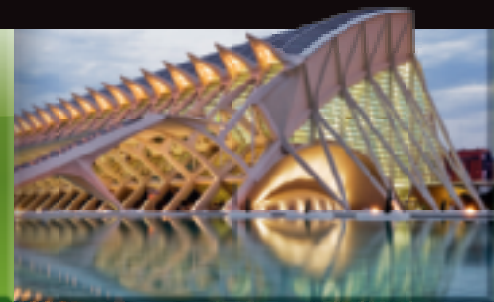
Reasoning and Proof



Get Ready for Chapter 2	89	
2-1 Inductive Reasoning and Conjecture	91	
2-2 Logic	99	
2-3 Conditional Statements	107	
Extend: Geometry Lab Biconditional Statements	116	
2-4 Deductive Reasoning	117	
Explore: Geometry Lab Necessary and Sufficient Conditions	126	
2-5 Postulates and Paragraph Proofs	127	G.MG.3
Mid-Chapter Quiz	135	
2-6 Algebraic Proof	136	
2-7 Proving Segment Relationships	144	G.CO.9, G.CO.12
2-8 Proving Angle Relationships	151	G.CO.9
ASSESSMENT		
Study Guide and Review	160	
Practice Test	165	
Preparing for Standardized Tests	166	
Standardized Test Practice, Chapters 1–2	168	



3 Parallel and Perpendicular Lines



Get Ready for Chapter 3	171	 Mathematical Content
3-1 Parallel Lines and Transversals	173	G.CO.1
 Explore: Geometry Software Lab Angles and Parallel Lines	179	G.CO.12
3-2 Angles and Parallel Lines	180	G.CO.1, G.CO.9
 Explore: Graphing Technology Lab Investigating Slope	187	G.GPE.5
3-3 Slopes of Lines	188	G.GPE.5
■ Mid-Chapter Quiz	197	
3-4 Equations of Lines	198	G.GPE.5
 Extend: Geometry Lab Equations of Perpendicular Bisectors	206	G.GPE.5
3-5 Proving Lines Parallel	207	G.CO.9, G.CO.12
3-6 Perpendiculars and Distance	215	G.CO.12, G.MG.3
ASSESSMENT		
■ Study Guide and Review	225	
■ Practice Test	229	
■ Preparing for Standardized Tests	230	
■ Standardized Test Practice, Chapters 1–3	232	


connectED.mcgraw-hill.com

Your Digital Math Portal


Animation
pp. 215, 234

Vocabulary
pp. 198, 237

Multilingual eGlossary
pp. 172, 236

Personal Tutor
pp. 201, 297

Congruent Triangles



Get Ready for Chapter 4	235	 Mathematical Content
4-1 Classifying Triangles	237	G.CO.12
 Explore: Geometry Lab Angles of Triangles	245	G.CO.12
4-2 Angles of Triangles	246	G.CO.10
4-3 Congruent Triangles	255	G.CO.7, G.SRT.5
4-4 Proving Triangles Congruent—SSS, SAS	264	G.CO.10, G.SRT.5
 Extend: Geometry Lab Proving Constructions	273	G.CO.12, G.SRT.5
■ Mid-Chapter Quiz	274	
4-5 Proving Triangles Congruent—ASA, AAS	275	G.CO.10, G.SRT.5
 Extend: Geometry Lab Congruence in Right Triangles	283	G.SRT.5
4-6 Isosceles and Equilateral Triangles	285	G.CO.10, G.CO.12
 Explore: Graphing Technology Lab Congruence Transformations	294	G.CO.5, G.CO.6
4-7 Congruence Transformations	296	G.CO.6, G.CO.7
4-8 Triangles and Coordinate Proof	303	G.CO.10, G.GPE.4
ASSESSMENT		
■ Study Guide and Review	310	
■ Practice Test	315	
■ Preparing for Standardized Tests	316	
■ Standardized Test Practice, Chapters 1–4	318	



Virtual Manipulatives
pp. 206, 273



Graphing Calculator
pp. 187, 294



Foldables
pp. 172, 236



Self-Check Practice
pp. 182, 258

Relationships in Triangles



Get Ready for Chapter 5	321	 Mathematical Content
 Explore: Geometry Lab Constructing Bisectors	323	G.CO.12
5-1 Bisectors of Triangles	324	G.CO.10, G.MG.3
 Explore: Geometry Lab Constructing Medians and Altitudes	334	G.CO.12
5-2 Medians and Altitudes of Triangles	335	G.CO.10, G.MG.3
5-3 Inequalities in One Triangle	344	G.CO.10
■ Mid-Chapter Quiz	352	
 Explore: Geometry Lab Matrix Logic	353	
5-4 Indirect Proof	355	G.CO.10
 Explore: Graphing Technology Lab The Triangle Inequality	363	G.CO.12
5-5 The Triangle Inequality	364	G.CO.10, G.MG.3
5-6 Inequalities in Two Triangles	371	G.CO.10
ASSESSMENT		
■ Study Guide and Review	381	
■ Practice Test	385	
■ Preparing for Standardized Tests	386	
■ Standardized Test Practice, Chapters 1–5	388	

connectED.mcgraw-hill.com

Your Digital Math Portal


Animation
pp. 334, 423

Vocabulary
pp. 322, 439

**Multilingual
eGlossary**
pp. 322, 392

Personal Tutor
pp. 347, 402

6 Quadrilaterals



Get Ready for Chapter 6	391	 Mathematical Content
6-1 Angles of Polygons	393	G.MG.1
 Extend: Spreadsheet Lab Angles of Polygons	402	
6-2 Parallelograms	403	G.CO.11, G.GPE.4
 Explore: Graphing Technology Lab Parallelograms	412	G.CO.12
6-3 Tests for Parallelograms	413	G.CO.11, G.GPE.4
■ Mid-Chapter Quiz	422	
6-4 Rectangles	423	G.CO.11, G.GPE.4
6-5 Rhombi and Squares	430	G.CO.11, G.GPE.4
6-6 Trapezoids and Kites	439	G.GPE.4, G.MG.3
ASSESSMENT		
■ Study Guide and Review	449	
■ Practice Test	453	
■ Preparing for Standardized Tests	454	
■ Standardized Test Practice, Chapters 1–6	456	



7 Proportions and Similarity



Get Ready for Chapter 7	459	 Mathematical Content
7-1 Ratios and Proportions	461	G.MG.3
 Extend: Graphing Technology Lab Fibonacci Sequence and Ratios	468	
7-2 Similar Polygons	469	G.SRT.2
7-3 Similar Triangles	478	G.SRT.4, G.SRT.5
 Extend: Geometry Lab Proofs of Perpendicular and Parallel Lines	488	G.GPE.5
7-4 Parallel Lines and Proportional Parts	490	G.SRT.4, G.SRT.5
 Mid-Chapter Quiz	500	
7-5 Parts of Similar Triangles	501	G.SRT.4, G.SRT.5
 Extend: Geometry Lab Fractals	509	
7-6 Similarity Transformations	511	G.SRT.2, G.SRT.5
7-7 Scale Drawings and Models	518	G.MG.3
ASSESSMENT		
 Study Guide and Review	524	
 Practice Test	529	
 Preparing for Standardized Tests	530	
 Standardized Test Practice, Chapters 1–7	532	


connectED.mcgraw-hill.com

Your Digital Math Portal


Animation
pp. 494, 534

Vocabulary
pp. 524, 600

**Multilingual
eGlossary**
pp. 460, 536

Personal Tutor
pp. 470, 459

Right Triangles and Trigonometry



Get Ready for Chapter 8	535	 Mathematical Content
8-1 Geometric Mean	537	G.SRT.4, G.SRT.5
 Explore: Geometry Lab Proofs Without Words	546	G.CO.10
8-2 The Pythagorean Theorem and Its Converse	547	G.SRT.8, G.MG.3
 Extend: Geometry Lab Coordinates in Space	556	
8-3 Special Right Triangles	558	G.SRT.6
 Explore: Graphing Technology Lab Trigonometry	567	G.SRT.6
8-4 Trigonometry	568	G.SRT.6, G.SRT.7
 Extend: Graphing Technology Lab Secant, Cosecant, and Cotangent	578	G.SRT.6
 Mid-Chapter Quiz	579	
8-5 Angles of Elevation and Depression	580	G.SRT.8
8-6 The Law of Sines and Law of Cosines	588	G.SRT.9, G.SRT.10
 Extend: Geometry Lab The Ambiguous Case	598	G.SRT.11
8-7 Vectors	600	G.GPE.6
 Extend: Geometry Lab Adding Vectors	609	
ASSESSMENT		
 Study Guide and Review	610	
 Practice Test	615	
 Preparing for Standardized Tests	616	
 Standardized Test Practice, Chapters 1–8	618	



Virtual Manipulatives
pp. 509, 569



Graphing Calculator
pp. 570, 567

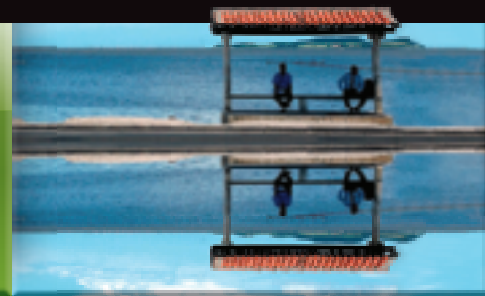


Foldables
pp. 460, 536



Self-Check Practice
pp. 483, 562

CHAPTER 9 Transformations and Symmetry



Get Ready for Chapter 9	621	 Mathematical Content
9-1 Reflections	623	G.CO.4, G.CO.5
9-2 Translations	632	G.CO.4, G.CO.5
 Explore: Geometry Lab Rotations	639	G.CO.2, G.CO.5
9-3 Rotations	640	G.CO.4, G.CO.5
 Extend: Geometry Lab Solids of Revolution	647	G.GMD.4
■ Mid-Chapter Quiz	649	
 Explore: Geometry Software Lab Compositions of Transformations	650	G.CO.2, G.CO.5
9-4 Compositions of Transformations	651	G.CO.2, G.CO.5
 Extend: Geometry Lab Tessellations	660	
9-5 Symmetry	663	G.CO.3
 Extend: Geometry Lab Exploring Constructions with a Reflective Device	670	G.CO.12
 Explore: Graphing Technology Lab Dilations	672	G.SRT.1
9-6 Dilations	674	G.CO.2, G.SRT.1
 Extend: Geometry Lab Establishing Triangle Congruence and Similarity	682	G.CO.8, G.SRT.3
ASSESSMENT		
■ Study Guide and Review	684	
■ Practice Test	689	
■ Preparing for Standardized Tests	690	
■ Standardized Test Practice, Chapters 1–9	692	

connectED.mcgraw-hill.com

Your Digital Math Portal


Animation
pp. 660, 707

Vocabulary
pp. 663, 766

**Multilingual
eGlossary**
pp. 622, 696

Personal Tutor
pp. 650, 758

Circles



Get Ready for Chapter 10	695	 Mathematical Content
10-1 Circles and Circumference	697	G.CO.1, G.C.1
10-2 Measuring Angles and Arcs	706	G.C.2, G.C.5
10-3 Arcs and Chords	715	G.C.2, G.MG.3
10-4 Inscribed Angles	723	G.C.2, G.C.3
■ Mid-Chapter Quiz	731	
10-5 Tangents	732	G.CO.12, G.C.4
 Extend: Geometry Lab Inscribed and Circumscribed Circles	740	G.CO.13, G.C.3
10-6 Secants, Tangents, and Angle Measures	741	
10-7 Special Segments in a Circle	750	
10-8 Equations of Circles	757	G.GPE.1, G.GPE.6
 Extend: Geometry Lab Parabolas	764	G.GPE.2
ASSESSMENT		
■ Study Guide and Review	767	
■ Practice Test	771	
■ Preparing for Standardized Tests	772	
■ Standardized Test Practice, Chapters 1–10	774	



Virtual Manipulatives
pp. 642, 740

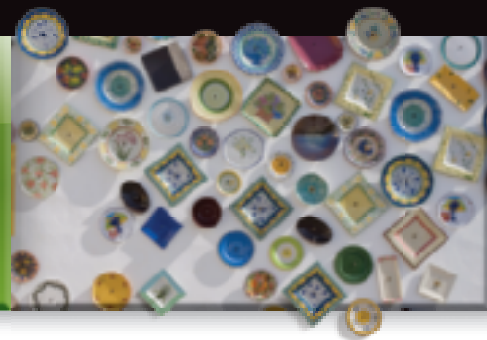


Foldables
pp. 622, 696



Self-Check Practice
pp. 621, 745

Areas of Polygons and Circles



Get Ready for Chapter 11	777	 Mathematical Content
11-1 Areas of Parallelograms and Triangles	779	G.GPE.7
 Explore: Graphing Technology Lab Areas of Trapezoids, Rhombi, and Kites	787	
11-2 Areas of Trapezoids, Rhombi, and Kites	789	G.MG.3
 Extend: Geometry Lab Population Density	797	G.MG.2
11-3 Areas of Circles and Sectors	798	G.C.5, G.GMD.1
 Mid-Chapter Quiz	805	
 Explore: Geometry Lab Investigating Areas of Regular Polygons	806	
11-4 Areas of Regular Polygons and Composite Figures	807	G.MG.3
 Extend: Geometry Lab Regular Polygons on the Coordinate Plane	816	
11-5 Areas of Similar Figures	818	G.MG.1
ASSESSMENT		
 Study Guide and Review	825	
 Practice Test	829	
 Preparing for Standardized Tests	830	
 Standardized Test Practice, Chapters 1–11	832	


connectED.mcgraw-hill.com

Your Digital Math Portal


Animation
pp. 806, 875

Vocabulary
pp. 778, 854

**Multilingual
eGlossary**
pp. 778, 836

Personal Tutor
pp. 797, 840

Extending Surface Area and Volume



Get Ready for Chapter 12 835



Mathematical Content

Explore: Geometry Lab Solids Formed by Translation 837

12-1 **Representations of Three-Dimensional Figures** 839 **G.GMD.4**

Extend: Geometry Lab Topographic Maps 845

12-2 **Surface Areas of Prisms and Cylinders** 846 **G.MG.3**

12-3 **Surface Areas of Pyramids and Cones** 854 **G.MG.1**

12-4 **Volumes of Prisms and Cylinders** 863 **G.GMD.1, G.GMD.3**

Extend: Graphing Technology Lab Changing Dimensions 871

■ **Mid-Chapter Quiz** 872

12-5 **Volumes of Pyramids and Cones** 873 **G.GMD.1, G.GMD.3**

12-6 **Surface Areas and Volumes of Spheres** 880 **G.GMD.1, G.GMD.3**

Extend: Geometry Lab Locus and Spheres 888

12-7 **Spherical Geometry** 889

Extend: Geometry Lab Navigational Coordinates 895

12-8 **Congruent and Similar Solids** 896

ASSESSMENT

■ **Study Guide and Review** 903

■ **Practice Test** 907

■ **Preparing for Standardized Tests** 908

■ **Standardized Test Practice, Chapters 1–12** 910



Virtual Manipulatives
pp. 790, 888



Graphing Calculator
pp. 787, 871



Foldables
pp. 778, 836



Self-Check Practice
pp. 800, 849

Probability and Measurement



Get Ready for Chapter 13	913	Mathematical Content
13-1 Representing Sample Spaces	915	
13-2 Probability with Permutations and Combinations	922	S.CP.9
13-3 Geometric Probability	931	S.MD.7
■ Mid-Chapter Quiz	938	
13-4 Simulations	939	G.MG.3, S.MD.6
13-5 Probabilities of Independent and Dependent Events	947	S.CP.2, S.CP.3
Extend: Geometry Lab Two-Way Frequency Tables	954	S.CP.4, S.CP.6
13-6 Probabilities of Mutually Exclusive Events	956	S.CP.1, S.CP.7
Extend: Geometry Lab Graph Theory	964	
ASSESSMENT		
■ Study Guide and Review	966	
■ Practice Test	969	
■ Preparing for Standardized Tests	970	
■ Standardized Test Practice, Chapters 1–13	972	

connectED.mcgraw-hill.com

Your Digital Math Portal

Animation
p. 964

xxiv

Vocabulary
p. 945Multilingual
eGlossary
p. 914Personal Tutor
p. 956Virtual
Manipulatives
p. 939Foldables
p. 914Self-Check
Practice
p. 918

Student Handbook

Contents

How to Use the Student Handbook

Extra Practice	R1
Selected Answers and Solutions	R14
Glossary/Glosario	R115
Index	R144
Formulas	Inside Back Cover
Symbols and Measures	Inside Back Cover

