

TABLE OF CONTENTS

Acknowledgments	III
Introduction	IV



Chapter 1: DEFINITIONS

Lesson	Page
1. Undefined Terms and One-Dimensional Figures	2
2. Angles	9
3. Polygons	26
4. Triangles	37
5. Quadrilaterals	50



Chapter 2: ANGLES AND LINES

Lesson	Page
1. Vertical and Linear Pair Angles	62
2. Parallel Lines and Special Angles	68
3. Pre-Requisite Skills for Parallel and Perpendicular Lines	88
4. Parallel and Perpendicular Lines	98



Chapter 3: CONSTRUCTIONS

Lesson	Page
1. Segments and Angles	110
2. Perpendicular Lines	120



Chapter 4: TRIANGLES

Lesson	Page
1. Side Lengths Necessary to Form a Triangle	140
2. Triangle Sum Theorem	142
3. Isosceles Triangles	147
4. Midsegments of a Triangle	154
5. Exploring Ways to Guarantee Congruent Triangles	157
6. Processing Congruent Triangles	173



Chapter 5: POLYGONS AND QUADRILATERALS

Lesson	Page
1. Polygons and Sum of Angles	192
2. Kites	203
3. Trapezoids	212
4. Parallelograms	222
5. Rhombus	232
6. Rectangles	237
7. Review	242

TABLE OF CONTENTS CONT...



Chapter 6: SIMILARITY

Lesson	Page
1. Proportions	248
2. Similar Figures	254
3. Postulates and Theorems of Similar Triangles	259



Chapter 7: PYTHAGOREAN THEOREM AND SPECIAL RIGHT TRIANGLES

Lesson	Page
1. Radical Review	268
2. The Pythagorean Theorem and Its Converse	276
3. Special Right Triangles	286



Chapter 8: AREA

Lesson	Page
1. Dimensional Analysis	300
2. Exploration of Area	306
3. Area of Rectangles and Squares	308
4. Area of Parallelograms	311
5. Area of Triangles	317
6. Area of Trapezoids	324
7. Circumference of a Circle	328
8. Area of Circles	333
9. Surface Area	343
10. Applications of Perimeter and Area	345



Chapter 9: VOLUME

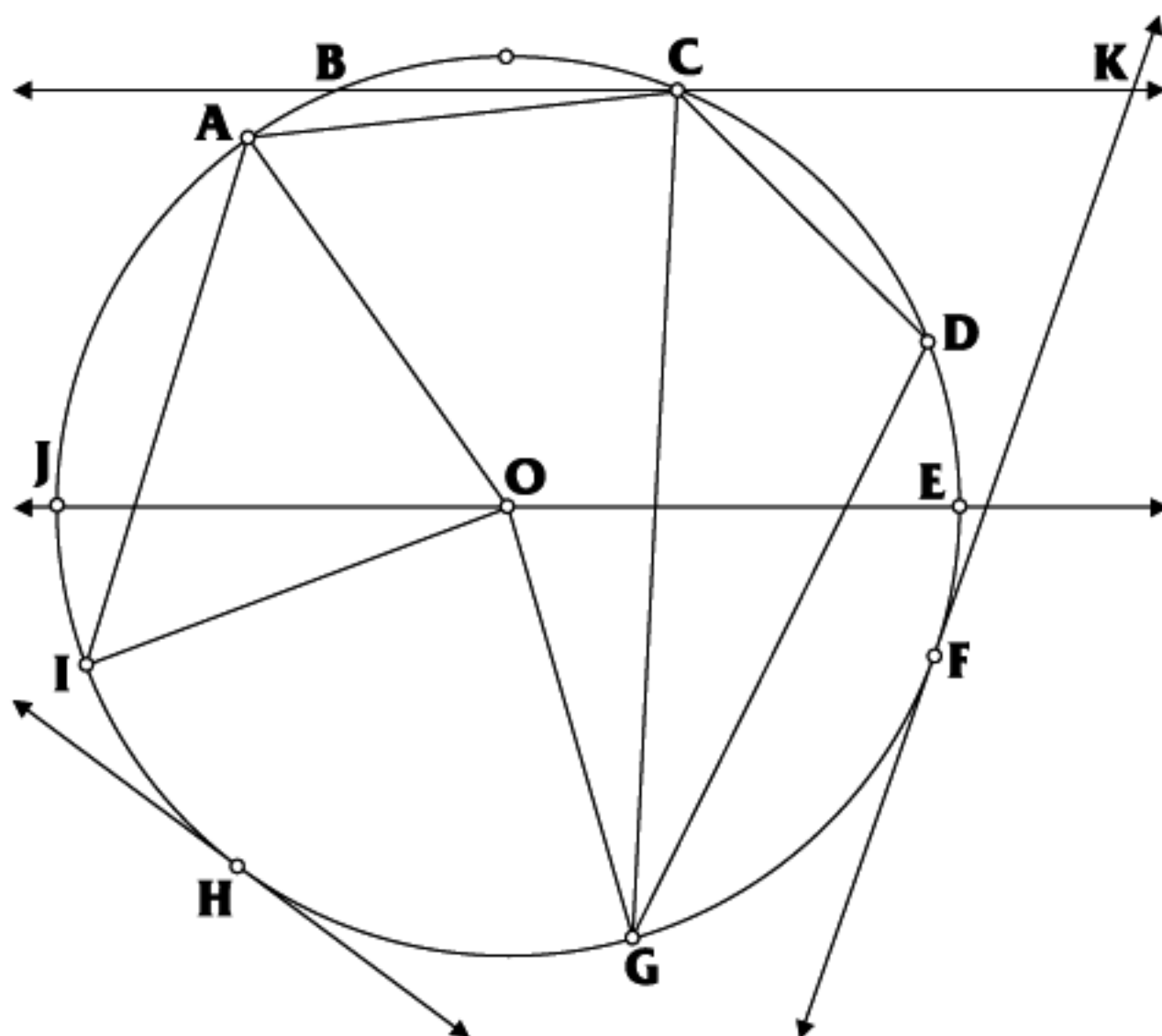
Lesson	Page
1. Vocabulary Development	354
2. Volume of Prisms and Cylinders	366
3. Volume of Pyramids and Cones	369
4. Surface Area of a Sphere	374
5. Volume of Spheres	376
6. Ratio of Similitude	386



Chapter 10: CIRCLES

Lesson	Page
1. Vocabulary Development	396
2. Properties of Chords	404
3. Properties of Tangents	414
4. Inscribed Angles	418
5. Angles, Chords, Circumference, and Area	425

4

GIVE AN EXAMPLE**Structure: Mix-Music-Meet****O is the center of the circle.**

DRAW WHAT I SAY



Structure: Fan-N-Pick

<p>Acute angle $\angle ABC$</p> <p><i>Answer:</i></p>	<p>Obtuse angle $\angle CDE$</p> <p><i>Answer:</i></p>
<p>Right angle $\angle DEF$</p> <p><i>Answer:</i></p>	<p>Complementary angles that are not adjacent</p> <p><i>Possible Answer:</i></p>
<p>Supplementary angles that are not adjacent</p> <p><i>Possible Answer:</i></p>	<p>Complementary angles that are adjacent</p> <p><i>Answer:</i></p>
<p>Supplementary angles that are adjacent</p> <p><i>Answer:</i></p>	<p>Linear pair angles $\angle ABC$ and $\angle CBD$</p> <p><i>Answer:</i></p>
<p>Vertical acute angles $\angle ABC$ and $\angle EBD$</p> <p><i>Answer:</i></p>	<p>Adjacent angles $\angle EFG$ and $\angle GFH$ whose sum is greater than 90°</p> <p><i>Possible Answer:</i></p>
<p>Adjacent angles $\angle ABC$ and $\angle CBD$ whose sum is less than 90°</p> <p><i>Possible Answer:</i></p>	<p>Perpendicular lines \overleftrightarrow{AB} and \overleftrightarrow{CD} intersecting at E.</p> <p><i>Answer:</i></p>
<p>Parallel lines l and m both of which are perpendicular to line n.</p> <p><i>Answer:</i></p>	<p>Ray \overrightarrow{BD} bisecting $\angle ABC$</p> <p><i>Answer:</i></p>



AREA

This chapter leads the students through an exploratory exercise for area, concrete development of area formulas, and structures that will reinforce the concepts taught. As a prerequisite to this unit, dimensional analysis is included. The level of student taught will determine if this review is necessary. An honors class may want to go directly to the exploration for area. For a class with average students, the dimensional analysis will be a great review. For a class of struggling students it is a must. The conversions are presented using dimensional analysis because it plays such a key role in science, reinforces ratios, and is easily transferable to conversions with units new to the student.

LESSON

1

DIMENSIONAL ANALYSIS

- ACTIVITY 1:** Listing Funny Forms of One
ACTIVITY 2: Processing Funny Forms of One
ACTIVITY 3: One-Step Converting with Funny Forms of One
ACTIVITY 4: Multi-step Converting with Funny Forms of One

LESSON

2

EXPLORATION OF AREA

- ACTIVITY 1:** Exploring Area

LESSON

3

AREA OF RECTANGLES AND SQUARES

- ACTIVITY 1:** Processing Area of Rectangles and Squares

LESSON

4

AREA OF PARALLELOGRAMS

- ACTIVITY 1:** Exploring Area of Parallelograms
ACTIVITY 2: Identifying Base and Height of Parallelograms
ACTIVITY 3: Computing Area of Parallelograms
ACTIVITY 4: Review: Area of Rectangles, Squares, and Parallelograms

LESSON

5

AREA OF TRIANGLES

- ACTIVITY 1:** Exploring Triangular Area
ACTIVITY 2: Identifying Base and Height of Triangles
ACTIVITY 3: Compute My Area
ACTIVITY 4: Processing Area of Triangles Part 1
ACTIVITY 5: Processing Area of Triangles Part 2

LESSON

6

AREA OF TRAPEZOIDS

- ACTIVITY 1:** Exploring Trapezoidal Area
ACTIVITY 2: Journal Reflection
ACTIVITY 3: Processing Area of Trapezoids

LESSON

7

CIRCUMFERENCE OF A CIRCLE

- ACTIVITY 1:** Exploring the Meaning of π
ACTIVITY 2: Computing Circumference

LESSON

8

AREA OF CIRCLES

- ACTIVITY 1:** Exploring Circular Area
ACTIVITY 2: Processing Circular Area
ACTIVITY 3: Circumference to Area
ACTIVITY 4: Area to Circumference
ACTIVITY 5: Matching Circumference to Area

LESSON

9

SURFACE AREA

- ACTIVITY 1:** Processing Surface Area

LESSON

10

APPLICATIONS OF PERIMETER AND AREA

- ACTIVITY 1:** What If? Effects of a Change in One Variable on Area
ACTIVITY 2: Generating Applications of Perimeter
ACTIVITY 3: Generating Applications of Area
ACTIVITY 4: Applications of Area and Perimeter