

# Table of Contents

<b>Chapter 1: Area</b>	<b>1</b>
Introduction	2
Study of the Area of the Rectangle	4
Study of the Area of the Parallelogram	7
Study of the Area of the Triangle	9
Study of the Area of the Square	14
Study of the Area of the Rhombus	15
Finding the Area of a Rhombus with Known Diagonals.	16
Insets Guide - Insets # 1 - # 17	19
Area of the Rhombus Using the Insets	20
Equivalence in Modern Geometry Texts: Trapezoid	22
Study of the Area of the Trapezoid	24
Study of the Area of Regular Polygons	26
Study of the Area of Irregular Polygons	29
Study of the Area of the Circle	30
A. Measurement of the Circumference of the Circle	31
B. Area Of The Circle I	34
C. Area of the Circle II	37
D. Sector of the Circle	40
E. Area of the Circle Working from the Sector	43
<b>Chapter 2: The Tiling Game</b>	<b>45</b>
First Passage	46
Second Passage	48
Third Passage: The Sum of the Interior Angles of the Triangle.	50
Sum Of The Interior Angles Of Quadrilaterals	52

The Sum of Interior Angles of Polygons With More Than Four Sides . . . . . 54

Angles on the Perimeter of Regular Polygons . . . . . 58

The Music of the Spheres: The Ascent Of Man by Bronowski . . . . . 60

**Chapter 3: Volume . . . . . .64**

Introduction . . . . . 65

Volume as a Measurement of Space (Solids) . . . . . 66

    A. The Right-angled Parallelepiped. . . . . 68

    B. Volume Of Solids: Not Parallelepipeds . . . . . .73

    C. Volume of Solids: Not Prisms . . . . . 79

**Chapter 4: Surface Area . . . . . .98**

Surface Area of Solids . . . . . 99

The Surface Area of Cylinders . . . . . 102

The Surface Area of Pyramids . . . . . 105

The Surface Area of the Cone . . . . . 108

The Surface Area of the Sphere . . . . . 110

**Chapter 5: Measurement . . . . . 112**

Outline of the Study of Measurement. . . . . 113

Decimal Metric System: Introduction . . . . . 114

    Length, Capacity, and Weight . . . . . 117

    Multiples and Sub-Multiples . . . . . 118

    Pairing of Prefix and Numerical Value . . . . . 120

    Union of Prefix and Root Word: Length . . . . . 121

    Measurement of Weight . . . . . 123

    Practical use of Measurement. . . . . 125

    Measurement of Capacity. . . . . 127

    Measurement of Surface . . . . . 128

    Measurement of Volume . . . . . 131

Equivalence: Passage From One Measurement to Another . . . . . 132

English Measurement System: Introduction . . . . . 133

    Presentation of the Symbol . . . . . 134

    Study of the Yard and Its Subdivisions . . . . . 136

    Measurement of Capacity. . . . . 139

    Measurement of Weight . . . . . 140

    Measurement of Area . . . . . 141

    Measurement of Volume . . . . . 142

**Material List . . . . . 143**

**Additional Titles. . . . . 145**