

Table of Contents

Study of Geometry Level II	1
An Introduction	2
Flow Chart	3
Chapter 1: Geometry Classified Nomenclature	4
Basic Concepts	5
Point, Line, Surface, Solid.	5
Study of the Line.	10
Types of Lines.	10
Study of Angle.	17
Parts of the Angle / Types of Angles	17
Measurement of Angles	23
Fraction/Degree/Type of Angle Chart.	30
Measurement of Angles with a Regular Protractor	31
Study of Figures	36
The Formation of Regions - Simple Closed Curve Figures and Polygons	36
Study of the Triangle.	39
Parts of the Triangle	39
Sides of the Triangle	40
Angles of the Triangle	43
Types of Triangles	45
The Right Triangle	47
The Equilateral Triangle	50
The Height or Altitude of a Triangle	52
Orthocenter of a Triangle	56
Constructing Triangles with a Compass	58

Study of Quadrilaterals 64

 Basic Quadrilaterals - According to Sides and Angles 64

 The Height or Altitude of a Quadrilateral 70

Study of the Polygon. 75

 Types of Polygon - Regular and Irregular 75

 Study Of Quadrilaterals - Equiangular And Equilateral 79

 Study of Triangles - Equiangular and Equilateral 80

 The Diagonal 1 81

 The Diagonal 2 87

Study of Lines and Angles 89

 The Transversal and Its Angles. 89

 Interior Angles on the Same Side of the Transversal 93

 Exterior Angles on The Same Side of the Transversal 95

 Angles on The Same Side of the Transversal 97

 Corresponding Angles 98

 Adjacent Angles 101

 Vertical Angles 104

 Two Parallel Straight Lines Cut by a Transversal 110

Study of the Circle 112

 Eratosthenes’ Great Discovery: The Circumference of the Earth. 112

 Parts of the Circle 114

 External Lines. 118

 Tangent of the Circle. 120

 Secant of the Circle 122

 External Circles 124

 Internal Circles 125

 Externally Tangent Circles. 126

 Internally Tangent Circles. 127

Secant Circles.	128
Concentric Circles	130
Chapter 2: Study Of Congruence	131
Introduction	132
Metal Inset Squares	133
Metal Inset Triangles	138
Chapter 3: Study of Similarities and Equivalence	140
Introduction	141
Proportionality with Triangles - Sensorial Presentation	142
Proportionality with Rectangles - Sensorial Presentation	144
Proportionality - Mathematical Presentation.	146
Sensorial Presentation	148
Chapter 4: The Constructive Triangles	154
Introduction	155
Sequence of Activities	156
The Triangle Box.	157
The Green Triangles from the Triangle Box.	159
Transitive Quality of Equivalencies	160
Relationship of The Sides of the Triangle and the Sides of the Halves	161
Large Hexagon Box - Triangle as the Point of Reference	166
Relationship of The Sides of the Triangle and The Sides of the Rhombus and Rhomboid	170
Large Hexagon Box - Hexagon As The Point Of Reference	173
Inscribing A Triangle In A Hexagon	175
Circumscribing a Triangle by a Hexagon	176
Relationship of Lines in a Hexagon Constructed by Six Triangles	177
The Small Hexagon.	178

The Small Hexagon Box 181

Terms of the Differences and the Ratios (Relationships) Between the Figures. 185

Ratios Between the Two Hexagons: H1 and H2 188

The Difference Between the Hexagons, H1 and H2 190

Equivalence of Red Obtuse Triangles and Red Equilateral Triangle 192

The Ratio Between an Equilateral Triangle and Another Built on Its Height 195

Equivalence of The Green Trapezoid and the Yellow Triangle, T2 197

The Relationship Between Inscribed and Circumscribed Figures 199

Chapter 5: Theorem of Pythagoras 201

 First Extension of the Theorem Of Pythagoras 203

 The Theorem Of Pythagoras 208

 First Inset for the Theorem of Pythagoras 211

 Second Inset for the Theorem of Pythagoras. 213

 Third Inset for the Theorem of Phythagoras 214

 The Theorem of Pythagoras: the Construction 217

Chapter 6: Equivalence. 220

 Introduction 221

 Insets Guide 222

 Equivalence from the Triangle to the Rectangle 224

 Equivalence from the Rhombus to the Rectangle 226

 Equivalence of the Parallelogram and Rectangle 228

 Equivalence of the Trapezoid and Rectangle 230

 Regular Polygons 233

 Study of Apothem 238

Material List 245

Additional Titles. 246