
Contents

Introduction	5
Geometry Games on the Internet	6
Basic Shapes	10
Playing with Shapes	13
Drawing Basic Shapes	16
Practicing Basic Shapes and Patterns	19
Shapes Review.....	22
Shapes	25
Right Angles	30
Surprises with Shapes	32
Making Shapes	36
Rectangles and Squares	37
Some Special Quadrilaterals	40
Geometric Patterns	43
Line Symmetry	46
Mirror Points	48
Perimeter	50
Problems with Perimeter	54
Getting Started with Area	57
More About Area	59
Multiplying by Whole Tens	63
Area Units and Problems	67
Area and Perimeter Problems	71
More Area and Perimeter Problems	73
Three-Dimensional Shapes	76
Solids 1	78
Solids 2	80

Review 1	82
Review 2	83
Geometry Review	85
Answers	87
Printable Cutouts for Common Solids	108
More from Math Mammoth	122

Introduction

Math Mammoth Early Geometry covers geometry topics for grades 1-3. These lessons are taken out from Math Mammoth Complete Curriculum (Light Blue Series).

The first lessons in this book have to do with shapes—that is where geometry starts. Children learn to recognize and draw basic shapes, and identify triangles, rectangles, squares, quadrilaterals, pentagons, hexagons, and cubes. They also put several shapes together to form new ones, or divide an existing shape into new ones.

We also study some geometric patterns, right angles, have surprises with pentagons and hexagons, and make shapes in a tangram-like game. These topics are to provide some fun while also letting children explore geometry and helping them to memorize the terminology for basic shapes.

The students also learn a little about symmetry and mirror points—two hopefully easy and fun topics that tie together.

In the latter part of the book, the emphasis is on two 3rd grade concepts: area and perimeter. Students find perimeters of polygons, including finding the perimeter when the side lengths are given, and finding an unknown side length when the perimeter is given.

They learn about area, and how to measure it in either square inches, square feet, square centimeters, square meters, or just square units if no unit of length is specified.

Students also relate area to the operations of multiplication and addition. They learn to find the area of a rectangle by multiplying the side lengths, and to find the area of rectilinear figures by dividing them into rectangles and adding the areas.

We also study the distributive property “in disguise.” This means using an area model to represent $a \times (b + c)$ as being equal to $a \times b$ plus $a \times c$. The expression $a \times (b + c)$ is the area of a rectangle with side lengths a and $(b + c)$, which is equal to the areas of two rectangles, one with sides a and b , and the other with sides a and c .

Multiplying by Whole Tens is a lesson about multiplication such as 3×40 or 90×7 . It is put here so that students can then use their multiplication skills to calculate areas of bigger rectangles.

Then we solve many area and perimeter problems. That is necessary so that students learn to distinguish between these two concepts. They also get to see rectangles with the same perimeter and different areas or with the same area and different perimeters.

Lastly we touch on solids, such as cube, rectangular prism, pyramids, cone, and cylinder, and study their faces, edges, and vertices. You can make paper models for them from the printouts provided after the answer key. Just print them out, cut out the shapes, fold the sides, and glue or tape the figures together. Alternatively you can buy them, usually made in plastic. Search on the internet for “geometric solids.”

I wish you success with your math teaching!

Maria Miller