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Introduction

Math Mammoth Early Geometry covers geometry topics for the early elementary grades (approximately 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 the names of the common shapes, and also put several shapes together to form new ones, or divide an existing shape into new ones. They practice using a ruler to draw various shapes and are introduced to tilings.

Next children learn the concepts of parallel lines and lines that are at a right angle (perpendicular lines). These two ideas are the starting point for the concept of an *angle*, which is covered in detail in the book *Math Mammoth Geometry 1*.

The book also has beginner lessons about symmetry, area, perimeter, and solids.

When studying the *solids*, such as the cube, rectangular prism, pyramids, cone, and cylinder, you can make paper models for them from the PDF printouts provided after the answer key. Just print them out, cut out the shapes, fold the sides, and glue or tape the figures together.

After studying these early geometry lessons, you can continue the study of geometry with *Math Mammoth Geometry 1* book. In it, children will learn to classify figures (during grades 4-6) according to their sides and angles, and learn much more about area, perimeter, and volume.

I wish you success with your math teaching!

Maria Miller

Geometry Games on the Internet

I encourage you to use some of these free resources that can make geometry so much fun!

You can access an up-to-date online version of this list at

www.mathmammoth.com/weblinks/early_geometry.htm

Shape Cutter

Draw any shape (polygon), cut it, and manipulate the cut pieces. You can have the computer mix them up, and then try to recreate the original shape.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=72>

Patch Tool

An online activity where the student designs a pattern using geometric shapes.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=27>

Polygon Matching Game

http://www.mathplayground.com/matching_shapes.html

Polygon Sort

Drag and drop the polygons in the correct place in the diagram.

<http://www.crickweb.co.uk/assets/resources/flash.php?&file=quad>

Polygon Playground

Drag various colorful polygons to the workarea to make your own creations!

<http://www.mathcats.com/explore/polygons.html>

Interactive Tangram Puzzle

Place the tangram pieces so they form the given shape.

http://nlvm.usu.edu/en/nav/frames_asid_112_g_2_t_1.html

Tangram set

Cut out your Tangram set by folding paper

<http://tangrams.ca/inner/foldtan.htm>

Shape Explorer

Find the perimeter and area of odd shapes on rectangular grid.

<http://www.shodor.org/interactivate/activities/ShapeExplorer/>

Area of Rectangle

Drag the corners of the rectangle and see the calculated side lengths and areas change.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=46>

Symmetry Game

Tell how many lines of symmetry a shape has.

http://www.innovationslearning.co.uk/subjects/maths/activities/year3/symmetry/shape_game.asp

Online Kaleidoscope

Create your own kaleidoscope creation with this interactive tool.

http://www.zefrank.com/dtoy_vs_byokal/

Primary Resources: Mirror Images

See images mirrored in a line.

<http://www.primaryresources.co.uk/online/symmetry.swf>

Primary Resources: Reflection

Color the squares and reflect the given pattern in a line.

<http://www.primaryresources.co.uk/online/reflection.swf>

Make Your Own Mandala

A mandala is a circular symmetrical design based on eights. Make your own and experiment with symmetry.

http://www.girlsgotech.org/world_around_us.html

Geometric Solids

Color the solid to investigate its properties, such as the number of faces, edges, and vertices.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=70>

Cubes

Fill a box with cubes, rows of cubes, or layers of cubes, and then fold in the sides of the box.

Illustrates the concept of volume.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=6>

Cuboid Exploder and Isometric Shape Exploder

These interactive demonstrations let you see either various cuboids (a.k.a. boxes or rectangular prisms) or various shapes made of unit cubes, and then "explode" them to the unit cubes, illustrating volume.

www.teacherled.com/resources/cuboidexplode/cuboidexplodeload.html and

www.teacherled.com/resources/isoexplode/isoexplodeload.html

Space Blocks

Build with blocks to illustrate three-dimensional shapes.

http://nlvm.usu.edu/en/nav/frames_asid_195_g_2_t_2.html

Shapes Identification Quiz from ThatQuiz.org

An online quiz in a multiple-choice format, asking to identify common two-dimensional shapes. You can modify the quiz parameters to your liking.

<http://www.thatquiz.org/tq-f/math/shapes/>