

# Unit 1: Family Letter



## Introduction to *Fourth Grade Everyday Mathematics*®

Welcome to *Fourth Grade Everyday Mathematics*. It is part of an elementary school mathematics curriculum developed by the University of Chicago School Mathematics Project (UCSMP).

*Everyday Mathematics* offers students a broad background in mathematics. Some approaches may differ from those you used as a student, but the approaches used are based on research, field test results, and the mathematics students will need in this century.

## *Fourth Grade Everyday Mathematics* emphasizes the following content:

**Algebra and Uses of Variables** Reading, writing, and solving number sentences

**Algorithms and Procedures** Exploring addition, subtraction, multiplication, and division methods; inventing individual procedures and algorithms; and experimenting with calculator procedures

**Coordinate Systems and Other Reference Frames** Using numbers in reference frames: number lines, coordinates, times, dates, and latitude and longitude

**Exploring Data** Collecting, organizing, displaying, and interpreting numerical data

**Functions, Patterns, and Sequences** Designing, exploring, and using geometric and number patterns

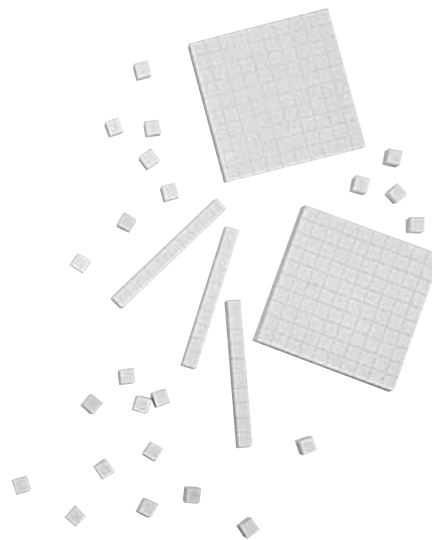
**Geometry and Spatial Sense** Developing an intuitive sense about 2- and 3-dimensional objects, their properties, uses, and relationships

**Measures and Measurement** Exploring metric and U.S. customary measures: linear, area, volume, weight; and exploring geographical measures

**Numbers, Numeration, and Order Relations** Reading, writing, and using whole numbers, fractions, decimals, percents, negative numbers; and exploring scientific notation

**Operations, Number Facts, and Number Systems** Practicing addition and subtraction to proficiency; and developing multiplication and division skills

**Problem Solving and Mathematical Modeling** Investigating methods for solving problems using mathematics in everyday situations



## Naming and Constructing Geometric Figures

During the next few weeks, the class will study the geometry of 2-dimensional shapes. Students will examine definitions and properties of shapes and the relationships among them. Students will use compasses to construct shapes and to create their own geometric designs.

**Please keep this Family Letter for reference as your child works through Unit 1.**

## Vocabulary

Important terms in Unit 1:

### **concave (nonconvex) polygon**

A polygon in which at least one vertex is “pushed in.”



concave polygon

### **convex polygon**

A polygon in which all vertices are “pushed outward.”



convex polygon

**endpoint** A point at the end of a line segment or a ray.

**line** Informally, a straight path that extends infinitely in opposite directions.

**line segment** A straight path joining two points. The two points are called the endpoints of the segment.

**parallelogram** A quadrilateral that has two pairs of parallel sides. Opposite sides of a parallelogram have equal lengths. Opposite angles of a parallelogram have the same measure.

**polygon** A 2-dimensional figure that is made up of three or more line segments joined end to end to make one closed path. The line segments of a polygon may not cross.

**quadrangle (quadrilateral)** A polygon that has four sides and four angles.

**ray** A straight path that extends infinitely from a point called its endpoint.

**rhombus** A quadrilateral whose sides are all the same length. All rhombuses are parallelograms. Every square is a rhombus, but not all rhombuses are squares.

**trapezoid** In *Everyday Mathematics*, a quadrilateral that has exactly one pair of parallel sides.

**vertex** The point where the rays of an angle, the sides of a polygon, or the edges of a polyhedron meet.

## Do-Anytime Activities

To work with your child on concepts taught in this unit, try these interesting and rewarding activities:

1. Help your child discover everyday uses of geometry as found in art, architecture, jewelry, toys, and so on.
2. See how many words your child can think of that have Greek/Latin prefixes such as *tri-*, *quad-*, *penta-*, *hexa-*, and *octa-*.
3. Help your child think of different ways to draw or make figures without the use of a compass, protractor, or straightedge. For example, you can trace the bottom of a can to make a circle, bend a straw to form a triangle, or make different shapes with toothpicks.
4. Challenge your child to draw or build something, such as a toothpick bridge, using triangular and square shapes. Or show pictures of bridges and point out the triangles used in bridges to provide support.

## Building Skills through Games

In Unit 1, your child will play the following games.

**Addition Top-It** See *Student Reference Book*, page 263. This game provides practice with addition facts.

**Polygon Pair-Up** See *Student Reference Book*, page 258. This game provides practice identifying properties of polygons.

**Sprouts** See *Student Reference Book*, page 313. This game provides practice with simple vertex-edge graphs and developing game strategies.




**Subtraction Top-It** See *Student Reference Book*, pages 263 and 264. This is a variation of *Addition Top-It* and provides practice with subtraction facts.

**Sz'kwa** See *Student Reference Book*, page 310. This game provides practice with intersecting line segments and developing game strategies.

# As You Help Your Child with Homework


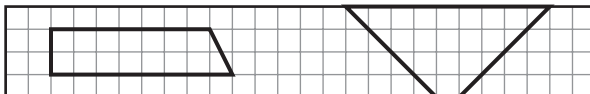
As your child brings assignments home, you may want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through this unit's Study Links.

## Study Link 1•2

2. a.  b.  c. The line has arrows on both ends, but the line segment does not.
3. a.  b. No. A ray's endpoint must be listed first when naming a ray.
4. A ruler has markings on it, so it can be used to measure.

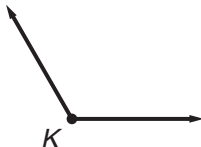
## Study Link 1•3

Sample answers:

1. 
2. 

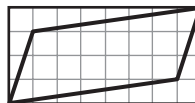
3. The polygons in Problems 1 and 2 have 4 sides and at least 1 pair of parallel sides. The Problem 1 polygons have 2 pairs of equal, parallel sides and all right angles.

4. a.  b. E c. FED

5. 

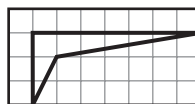
## Study Link 1•4

1. Sample answer:

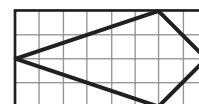


2. a. yes b. yes c. yes d. no

3. Sample answer:



4. kite



## Study Link 1•5

1. rectangle 2. Equilateral triangle 3. rhombus

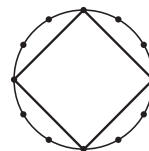
## Study Link 1•6

1. A, B, C, E, F, G, I 2. B, C 3. C, E, F, I 4. A 5. A, B, D, F, G, H, I 6. D, G, H 7. 2

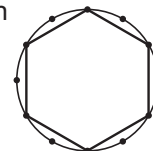
## Study Link 1•8

1. Sample answers:

- a. square



- c. hexagon



2. Sample answer: Sides are all the same length, and interior angles are all the same measure.