

Twin Valley School District

Math Grades 4 & 5

Everyday Mathematics

Scope & Sequence/Overview

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EVERYDAY MATHEMATICS

INTRODUCTION

In grades kindergarten through five, the Twin Valley School District has implemented *Everyday Mathematics*, which is an exemplary elementary mathematics (K-6) program, published by SRA-McGraw-Hill. The extensive spiral curriculum which underlies this program fully represents the mandates of the “Math Reform Movement,” as well as the “Standards” of the Pennsylvania Department of Education, and those of the National Council of Teachers of Mathematics (NCTM). In a recent, though informal study, the correlation between the PA Math Standards and *Everyday Mathematics* was seen to be approximately 94%, which represents an extraordinarily high content match.

The learning and instructional goals for *Everyday Mathematics* fall into six program strands, across all of the grades:

- **Operations and Computation** (including: *basic facts, mental math, algorithms, estimation, number stories, money, powers of ten, and exponents*)
- **Numeration** (including: *counting, order, relations, estimation, odd/even, fractions, decimals, and percents*)
- **Patterns, Functions, & Algebra** (including: *number and visual patterns, properties, sequences, functions, number sentences, equations and inequalities, variables, and formulas*)
- **Data & Chance** (including: *mean, median, range, mode, tally charts, line plots, graphs, and probability*)
- **Measurement & Reference Frames** (including: *linear measures, weight, capacity, money, time, temperature, perimeter, area, volume, diameter and circumference, angle, and coordinate grid*)
- **Geometry** (including: *two-dimensional, three-dimensional, symmetry, congruence, angles*)

For the purposes of this curriculum document, it was decided that the most meaningful way to represent the concepts to-be-learned at each grade, would be to list them under the strands in which they logically are subsumed. Further, for the purposes of brevity and clarity, it was decided to list only those concepts which reach the highest level of learning expectation, called “Secure.” The many concepts which are taught at each grade, but are to-be-learned only to a “Beginning” or “Developing” levels, are not reported in this document.

GRADES 4 & 5

OVERVIEW

As was explained on the cover page of this K-5 curriculum document, only the “Secure” learning goals for this grade are reported below, and those concepts and skills are organized by the six mathematics strands in which they logically are subsumed. Please note that these concepts and skills become progressively “Secure” during the four quarters of the school year, which accounts for the presence of lower level expectations in one quarter which are extended in later quarters of the same grade. Also note that many more concepts are introduced and/or extended in all six mathematics strands at this grade (at “Beginning” and “Developing” levels), so that they can become “Secure” at subsequent grade levels.

Particularly at the intermediate grades, this program achieves its learning success largely through linking, extending, and applying prior foundational concepts to those at higher thinking levels. A high level of active engagement of the learners on a daily basis continues at these grades, accounting for the learners’ investment, enjoyment, and retention of the “Secure” concepts listed below.

GRADE 4

➤ Operations and Computation

- Solving all addition and subtraction facts
- Having and explaining a successful strategy for subtracting two 3-digit numbers
- Having and explaining a successful strategy for adding two 3-digit numbers
- Using and explaining strategies for solving addition and subtraction number stories
- Solving basic multiplication facts
- Solving extended multiplication facts (e.g. $3 \times 5 = 15$, therefore, $30 \times 5 = 150$)
- Solving multiplication exercises with two 2-digit factors
- Estimating sums

➤ Numeration

- Reading and writing numerals to hundred-millions
- Identifying the place value of the digits in a 6-digit number
- Comparing large numbers for size

- Finding equivalent fractions for a given fraction (using concrete models)
 - Identifying the “whole” for fractions
 - Identifying fractional parts of a collection of objects
 - Identifying fractional parts of whole regions
- **Patterns, Functions, & Algebra**
- Giving equivalent names for numbers
 - Solving open sentences involving any one operation
 - Determining whether number sentences are true or false
- **Data & Chance**
- Displaying data using a bar graph and a tally sheet
 - Using the statistical landmarks: median, mode, and range
 - Using the statistical landmarks: maximum and minimum
- **Measurement & Reference Frames**
- Using personal references to estimate lengths in metric units
 - Drawing and measuring line segments to the nearest centimeter
 - Using dollars and cents notation correctly
 - Naming and locating points specified by ordered number pairs on a coordinate grid (first quadrant only)
- **Geometry**
- Naming, drawing, and labeling line segments, lines, and rays
 - Naming and labeling angles, triangles, and quadrangles
 - Identifying and describing right angles, parallel lines, and line segments
 - Identifying acute, right, obtuse, and straight angles
 - Finding the perimeter of a polygon
 - Estimating the area of a figure by counting unit squares and fractions of unit squares inside the given figure
 - Rotating figures
 - Translating figures
 - Using a transparent mirror to draw the reflection of a figure
 - Identifying lines of symmetry, lines of reflection, reflected figures, and figures with line symmetry
 - Solving cube-stacking volume problems

GRADE 5

- **Operations and Computation**
 - Drawing arrays with the appropriate number model to explain the meaning of a multiplication fact
 - Knowing all basic multiplication facts to 10
 - Finding the sum of multi-digit decimal numbers
 - Finding the difference of multi-digit decimal numbers

- **Numeration**
 - Identifying odd and even numbers
 - Knowing place value to billions
 - Identifying the place value of digits in 7-digit numbers
 - Knowing place value to hundredths
 - Finding equivalent fractions
 - Finding common denominators

- **Patterns, Functions, & Algebra**

- **Data & Chance**
 - Finding, using, and explaining all of the basic statistical landmarks

- **Measurement & Reference Frames**
 - Plotting ordered pairs on a one-quadrant coordinate grid

- **Geometry**
 - Identifying the different types of angles
 - Understanding and explaining the concept of area of a figure
 - Using the formula to find the area of rectangles
 - Knowing the properties of geometric solids