



## An Overview of Grade 3: 2<sup>nd</sup> Edition<sup>1</sup>

The third grade curriculum is organized into 9 units that offer from 2½ to 5 weeks of work, focused on the area(s) of mathematics identified in the unit’s subtitle. Because units build on each other, both within and across strands, they are designed for use in the sequence shown.

Unit Title	Number of Sessions
<b>Trading Stickers, Combining Coins</b> Addition, Subtraction, and the Number System 1	17
<b>Surveys and Line Plots</b> Data	20
<b>Collections and Travel Stories</b> Addition, Subtraction, and the Number System 2	26
<b>Perimeter, Angles, and Area</b> 2-D Geometry and Measurement	17
<b>Equal Groups</b> Multiplication and Division	23
<b>Stories, Tables, and Graphs</b> Patterns, Functions, and Change	15
<b>Finding Fair Shares</b> Fractions	14
<b>How Many Hundreds? How Many Miles?</b> Addition, Subtraction, and the Number System 3	19
<b>Solids and Boxes</b> 3-D Geometry and Measurement	13

Note that the *Investigations* curriculum assumes that each school day includes 70-75 minutes of math: one hour on the day’s Session, and 10-15 minutes on the Classroom Routine or Ten-Minute Math activity. Designed to fit within the calendar of a typical school year, third grade includes a total of 164 sessions (or approximately 33 weeks of work). This provides some leeway for going further with particular ideas and/or accommodating local circumstances. Although pacing will vary somewhat in response to variations in school calendars, needs of students, your school's years of experience with the curriculum, and other local factors, following the suggested pacing and sequence will ensure that students benefit from the way mathematical ideas are introduced, developed, and revisited across the year.

<sup>1</sup> This document applies to the 2nd edition of *Investigations* (2008, 2012). See <http://investigations.terc.edu/CCSS/> for changes when implementing *Investigations and the Common Core Standards*.

## **An Overview of the Math in Third Grade\***

**Number and Operations: Whole Numbers** Students build an understanding of the base-ten number system to 1,000. Much of the work focuses on or supports the development of fluency with the operations of addition and subtraction. Students investigate the properties of multiplication and division, including the inverse relationship between these two operations, and develop strategies for solving multiplication and division problems. By the end of the year, students are expected to solve three-digit addition problems using at least one strategy accurately and efficiently; to solve subtraction problems with three-digit numbers; and to be fluent with the multiplication combinations with products to 50.

**Number and Operations: Fractions** Students use fractions (halves, fourths, eighths, thirds, and sixths) and mixed numbers as they solve sharing problems and build wholes from fractional parts. Students are introduced to decimal fractions (0.50 and 0.25), using the context of money, and gain familiarity with fraction and decimal equivalents involving halves and fourths.

**Geometry and Measurement** Students study the attributes of 2-D and 3-D shapes and use these attributes to classify shapes. Students determine the volume of the rectangular prisms that fit into a variety of open boxes. They measure length and perimeter with both U.S. standard (inches, feet and yards) and metric (centimeters and meters) units. They find area, identify the internal angle of a rectangle or square as 90 degrees, and use right angles as a benchmark as they consider the sizes of angles of other polygons.

**Patterns and Functions** Students study situations of change as they examine temperature over time in different places around the world, analyze number sequences generated by repeating patterns, and consider a fantasy situation of constant change in which children receive a certain number of *Magic Marbles* each day. They make, read, and compare tables and line graphs that show a relationship between two variables in situations of change over time. They use both tables and graphs to examine and compare situations with a constant rate of change.

**Data Analysis** Students collect, represent, describe, and interpret both categorical and numerical data. They consider how to look at a data set as a whole and make statements about the whole group. By conducting their own data investigations, students consider how the question they pose and the way they conduct their study impact the resulting data.

### **Ongoing Review and Practice**

Approximately 10 minutes per day is spent on one of seven Ten-Minute Math activities and two Classroom Routines, which offer practice and review of key concepts in place value, number, data, geometry, temperature, and time.

Homework is provided 3-4 times a week. In addition, each session includes a page for Daily Practice that can be used either for additional homework or for in-class practice. The *Student Math Handbook* illustrates important words and ideas and can be used for review.

**\*Note:** For more detailed information on the math at this grade level, see *Mathematics in Grade 3* and *Grade 3 Scope and Sequence in Implementing Investigations in Grade 3*.

## Over the course of third grade, students...

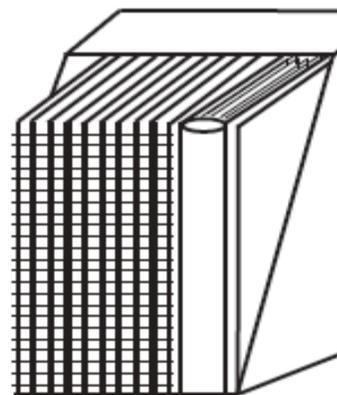
- Visit “Sticker Station”—which sells single stickers, strips of 10, or sheets of 100—as a way to develop an understanding of our place value system.
- Use cubes, number lines, 100, 200, 300, and 1,000 Charts, coins, and stickers to represent quantities, to solve problems, and to develop and refine strategies for adding and subtracting three-digit numbers.
- Develop survey questions about “Places we like to ...” and collect, represent, and interpret data from their own and other classrooms.
- Measure in yards, feet, and inches to answer the question “How Far Can a Third Grader Jump?”.
- Create a “Class Collection” of 1,000 objects and determine how many more are needed to reach the week’s goal and how far they are from their overall goal (1,000).
- Use the contexts of family trips and the Oregon Trail to solve problems about the distance between two points.
- Compare the lengths of snakes, such as the Burmese Python and the Black Rat Snake, and determine the difference between them.
- Make “Tetrominoes” (arrangements of four squares), and use them to solve puzzles about area.
- Use building kits to make triangles and quadrilaterals and consider their attributes.
- Use arrays to represent multiplication; investigate prime, composite, and square numbers; and to learn the multiplication combinations with products to 50.
- Record and graph the outside temperature once a week for the entire school year and compare this data to graphs of temperature from locations around the world.
- Use the context of the “Magic Marbles of Rhomar” in which children receive a certain number of marbles each night to learn about and represent a constant rate of change.
- Solve problems about sharing brownies and play the *Fraction Cookie Game* to name fractional parts, find equivalent fractions, combine fractions, and use mixed numbers to represent quantities greater than 1.
- Play *What’s My Shape?* with sets of geometric solids to describe the attributes of polyhedra, such as prisms and pyramids, and non-polyhedra, such as cones and cylinders.
- Create patterns for boxes to hold a given number of cubes and determine how many cubes will fit into given box patterns.

## The Components

In order to teach the third grade curriculum, a teacher needs the Core Curriculum Package, Student Activity Books, and the third grade manipulatives. The following section describes all of the components available at third grade:

The **Core Curriculum Package** at Grade 3. This includes:

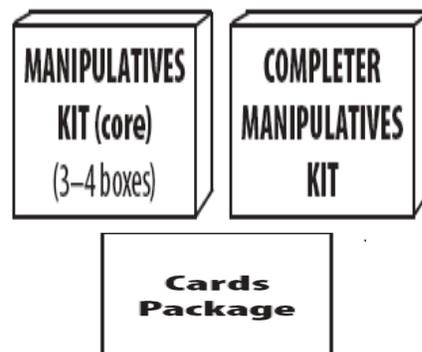
- the nine **curriculum units** listed above.
- **Implementing Investigations in Grade 3**. This book helps teachers get started and provides useful ongoing support.
- a **Resources Binder**. Available in English or Spanish, this contains all of the transparencies and masters (e.g. assessment masters, game directions, family letters), in hard copy and on a CD. It also includes the *LogoPaths* software, used in the Grade 3 2-D Geometry unit and recommended for additional use throughout the year.



Also available separately: a **Spanish Teaching Companion** that presents vocabulary and teacher dialogue in Spanish, and an **Answer Key**.

There are three kits available for a class of 32 students:

- The Grade 3 **Manipulatives Kit** includes all of the student and overhead manipulatives needed to teach the third grade units.
- The Grade 3 **Completer Manipulatives Kit** includes only the materials that are new to the second edition.
- The Grade 3 **Cards Package** provides manufactured decks of the most-used card sets. (These can also be made from Masters in the Resources Binder.)



The following resources are available for students:

- **Student Activity Book(s)** for each student. Available by unit or for the whole year, this consumable resource contains all of the pages students need, including: activity sheets, recording sheets for math games, homework sheets, and practice pages. It is available in English or Spanish.
- **Student Math Handbooks** for each student and/or several for the classroom. This hardcover book, which illustrates math words and ideas and provides game directions, is also available online and in Spanish.

