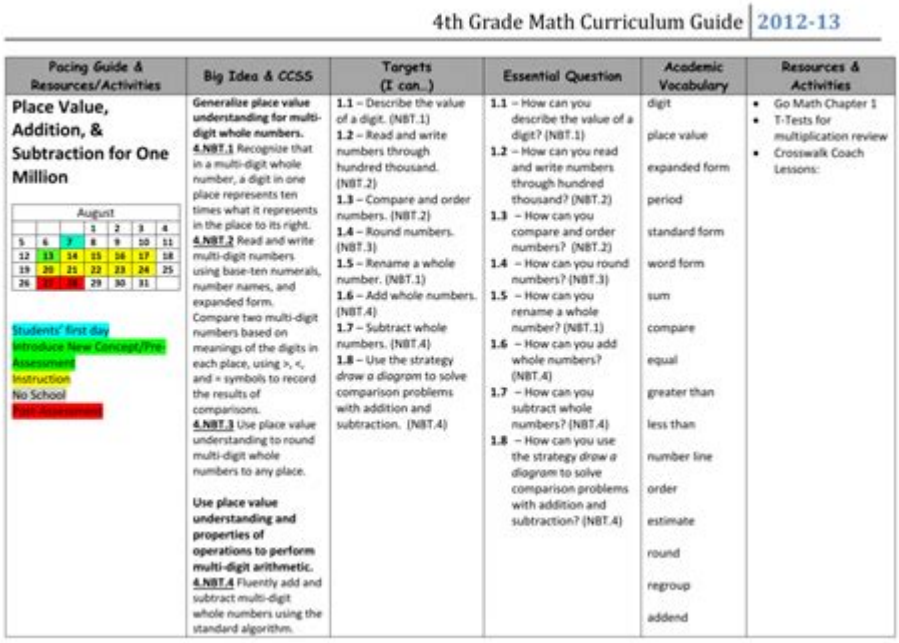
Grade 4 Math Curriculum



4th Grade Math Curriculum Guide | 2012-13

Pacing Guide & Resources/Activities	Big Idea & CCSS	Targets (I can…)	Essential Question	Academic Vocabulary	Resources & Activities
Place Value, Addition, & Subtraction for One Million August 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 Students' first day Introduce New Concept/Pre-Assessment Instruction No School Post-Assessment	**Generalize place value understanding for multi-digit whole numbers.** 4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. 4.NBT.2 Read and write multi-digit numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, <, and = symbols to record the results of comparisons. 4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place. **Use place value understanding and properties of operations to perform multi-digit arithmetic.** 4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	1.1 – Describe the value of a digit. (NBT.1) 1.2 – Read and write numbers through hundred thousand. (NBT.2) 1.3 – Compare and order numbers. (NBT.2) 1.4 – Round numbers. (NBT.3) 1.5 – Rename a whole number. (NBT.1) 1.6 – Add whole numbers. (NBT.4) 1.7 – Subtract whole numbers. (NBT.4) 1.8 – Use the strategy *draw a diagram* to solve comparison problems with addition and subtraction. (NBT.4)	1.1 – How can you describe the value of a digit? (NBT.1) 1.2 – How can you read and write numbers through hundred thousand? (NBT.2) 1.3 – How can you compare and order numbers? (NBT.2) 1.4 – How can you round numbers? (NBT.3) 1.5 – How can you rename a whole number? (NBT.1) 1.6 – How can you add whole numbers? (NBT.4) 1.7 – How can you subtract whole numbers? (NBT.4) 1.8 – How can you use the strategy *draw a diagram* to solve comparison problems with addition and subtraction? (NBT.4)	digit place value expanded form period standard form word form sum compare equal greater than less than number line order estimate round regroup addend	• Go Math Chapter 1 • T-Tests for multiplication review • Crosswalk Coach Lessons:

Grade 4 Math Curriculum plays a crucial role in laying the foundation for more advanced mathematical concepts. At this stage, students transition from basic arithmetic to more complex operations, enabling them to solve real-world problems. The curriculum is designed to deepen their understanding of numbers, build problem-solving skills, and prepare them for the challenges of higher grades. This article will explore the key components of the Grade 4 math curriculum, including the main topics covered, instructional strategies, and assessments used to measure student understanding.

Overview of the Grade 4 Math Curriculum

In Grade 4, students typically engage with a variety of mathematical concepts that align with state and national standards. The curriculum is divided into several key areas:

1. Number and Operations: This includes understanding place value, multi-digit arithmetic, and the concepts of fractions and decimals.
2. Algebraic Thinking: Students begin to recognize patterns and relationships, which lays the groundwork for algebra.
3. Measurement and Data: This involves measuring objects, understanding units of measurement, and collecting and interpreting data.
4. Geometry: Students learn about shapes, their properties, and how to calculate area and perimeter.
5. Problem Solving: Throughout all the areas, emphasis is placed on developing problem-solving skills that allow students to tackle mathematical challenges effectively.

Key Concepts in Grade 4 Math

1. Number and Operations

In Grade 4, students delve deeper into the world of numbers and operations. Key concepts include:

- Place Value: Understanding how the position of a digit in a number affects its value.
- Multi-Digit Arithmetic: Students learn to add, subtract, multiply, and divide multi-digit numbers, often using the standard algorithm.
- Fractions: Grade 4 students explore fractions in various forms, including:
- Equivalent fractions
- Comparing and ordering fractions
- Adding and subtracting fractions with like and unlike denominators
- Decimals: Introduction to decimal notation, understanding tenths and hundredths, and comparing decimal values.

2. Algebraic Thinking

Algebraic thinking in Grade 4 focuses on recognizing patterns, understanding variables, and solving equations. Students learn to:

- Identify and extend patterns in numbers and shapes.
- Use variables to represent unknowns in simple equations.
- Solve one-step equations and inequalities.

3. Measurement and Data

Measurement and data skills are essential for students to navigate the world around them. In Grade 4, students learn to:

- Measure length, weight, and volume using appropriate tools.
- Understand and convert units of measurement (e.g., inches to feet, ounces to pounds).
- Collect data through surveys or experiments and represent it using graphs such as bar graphs, line plots, and pie charts.
- Calculate the mean, median, mode, and range of a data set.

4. Geometry

Geometry in Grade 4 includes a focus on both 2D and 3D shapes. Key topics include:

- Identifying and classifying shapes based on their properties (sides, angles, symmetry).
- Understanding the concepts of area and perimeter, including formulas for calculating the area of

rectangles and squares.
- Exploring volume through the measurement of solid figures.

5. Problem Solving

Problem-solving is interwoven throughout the Grade 4 math curriculum. Students are encouraged to:

- Use a variety of strategies to approach problems, including drawing diagrams, using manipulatives, or breaking problems into smaller parts.
- Develop critical thinking skills by discussing and explaining their reasoning.
- Work collaboratively with peers to solve complex problems, fostering a sense of community and shared learning.

Instructional Strategies

To effectively teach the Grade 4 math curriculum, educators employ a range of instructional strategies, including:

- Hands-On Learning: Utilizing manipulatives such as blocks, counters, and fraction tiles helps students visualize concepts and engage in active learning.
- Visual Aids: Incorporating diagrams, charts, and number lines aids in understanding abstract concepts.
- Integrated Technology: Using educational software and online resources can enhance the learning experience and provide personalized practice.
- Collaborative Learning: Group work and peer tutoring encourage students to share ideas and learn from one another.
- Real-World Applications: Connecting math concepts to real-life situations helps students understand the relevance of what they are learning.

Assessments in Grade 4 Math

Assessment plays a vital role in the Grade 4 math curriculum, helping teachers gauge student understanding and adjust instruction accordingly. Various assessment methods include:

- Formative Assessments: Ongoing assessments, such as quizzes, classwork, and informal observations, provide immediate feedback on student progress.
- Summative Assessments: End-of-unit tests and standardized tests measure students' overall understanding of the curriculum.
- Performance Tasks: These assessments require students to apply their knowledge to solve complex problems or projects, demonstrating their understanding in a practical context.
- Self-Assessment and Reflection: Encouraging students to reflect on their learning helps them identify strengths and areas for improvement.

Conclusion

The Grade 4 math curriculum is a comprehensive program designed to enhance students' mathematical skills and reasoning. By covering essential topics such as number and operations, algebraic thinking, measurement and data, and geometry, students build a solid foundation for future math learning. Through a variety of instructional strategies and assessments, educators can create an engaging and supportive environment that fosters a love for math and equips students with the skills necessary to tackle more advanced concepts in higher grades. As students progress through the curriculum, they develop critical thinking and problem-solving abilities that will serve them well in academics and everyday life.

Frequently Asked Questions

What are the key topics covered in the grade 4 math curriculum?

The grade 4 math curriculum typically covers topics such as addition and subtraction of multi-digit numbers, multiplication and division, fractions, decimals, geometry, measurement, and basic data interpretation.

How can parents support their child's learning in grade 4 math?

Parents can support their child's learning by practicing math problems at home, using educational games, encouraging the use of math in daily activities, and communicating with teachers about their child's progress.

What are some effective strategies for teaching fractions in grade 4?

Effective strategies for teaching fractions include using visual aids like fraction circles or bars, incorporating hands-on activities such as cooking to measure ingredients, and connecting fractions to real-life situations to enhance understanding.

How does the grade 4 math curriculum prepare students for higher-level math?

The grade 4 math curriculum lays a strong foundation by developing critical thinking and problem-solving skills, introducing concepts of algebraic thinking, and fostering an understanding of numerical relationships, all of which are essential for higher-level math.

What resources are available for teachers to enhance the grade 4 math curriculum?

Teachers can enhance the grade 4 math curriculum by utilizing online resources such as educational websites, interactive math games, printable worksheets, and professional development workshops

that focus on innovative teaching strategies.

Grade 4 Math Curriculum

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