

## Grade Level Overviews:

### Kindergarten Overview

From the Ohio Department of Education & Workforce

#### COUNTING AND CARDINALITY

- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

#### OPERATIONS AND ALGEBRAIC THINKING

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

#### NUMBER AND OPERATIONS IN BASE TEN

- Work with numbers 11–19 to gain foundations for place value.

#### MEASUREMENT AND DATA

- Identify, describe, and compare measurable attributes.
- Classify objects and count the number of objects in each category.

#### GEOMETRY

- Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
- Describe, compare, create, and compose shapes.

#### FLUENCY EXPECTATION:

- Fluently add and subtract within 5.
- Count to 100 by ones and by tens.

## 1st Grade Overview

### From the Ohio Department of Education & Workforce

#### OPERATIONS AND ALGEBRAIC THINKING

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

#### NUMBER AND OPERATIONS IN BASE TEN

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

#### MEASUREMENT AND DATA

- Measure lengths indirectly and by iterating length units.
- Work with time and money.
- Represent and interpret data.

#### GEOMETRY

- Reason with shapes and their attributes.

#### FLUENCY EXPECTATION:

- Fluently add and subtract within 10 using mental strategies.
- Add and subtract within 20 using concrete math tools.

**2nd Grade Overview**  
**From the Ohio Department of Education & Workforce**

**OPERATIONS AND ALGEBRAIC THINKING**

- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.
- Work with equal groups of objects to gain foundations for multiplication.

**NUMBER AND OPERATIONS IN BASE TEN**

- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

**MEASUREMENT AND DATA**

- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- Work with time and money.
- Represent and interpret data.

**GEOMETRY**

- Reason with shapes and their attributes.

**FLUENCY EXPECTATION:**

- Fluently add and subtract within 20 using mental strategies.
- Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

### **3rd Grade Overview**

#### **From the Ohio Department of Education & Workforce**

#### **OPERATIONS AND ALGEBRAIC THINKING**

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.

#### **NUMBER AND OPERATIONS IN BASE TEN**

- Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used.

#### **NUMBER AND OPERATIONS—FRACTIONS**

- Develop understanding of fractions as numbers. Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.

#### **MEASUREMENT AND DATA**

- Solve problems involving money, measurement, and estimation of intervals of time, liquid volumes, and masses of objects.

#### **GEOMETRY**

- Reason with shapes and their attributes.
- Represent and interpret data.
- Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

#### **FLUENCY EXPECTATION:**

- Fluently multiply and divide within 100.
- Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

## 4th Grade Overview

### From the Ohio Department of Education & Workforce

#### OPERATIONS AND ALGEBRAIC THINKING

- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Generate and analyze patterns.

#### NUMBER AND OPERATIONS IN BASE TEN

- Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000.
- Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers less than or equal to 1,000,000.

#### NUMBER AND OPERATIONS—FRACTIONS

- Extend understanding of fraction equivalence and ordering limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. (Fractions need not be simplified).
- Understand decimal notation for fractions, and compare decimal fractions limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

#### MEASUREMENT AND DATA

- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Represent and interpret data.
- Geometric measurement: understand concepts of angle and measure angles.

#### GEOMETRY

- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

#### FLUENCY EXPECTATION:

- Fluently add and subtract multi-digit whole numbers using a standard algorithm.

## 5th Grade Overview

From the Ohio Department of Education & Workforce

### OPERATIONS AND ALGEBRAIC THINKING

- Write and interpret numerical expressions.
- Analyze patterns and relationships.

### NUMBER AND OPERATIONS IN BASE TEN

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

### NUMBER AND OPERATIONS—FRACTIONS

- Use equivalent fractions as a strategy to add and subtract fractions. (Fractions need not be simplified).
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions. (Fractions need not be simplified).

### MEASUREMENT AND DATA

- Convert like measurement units within a given measurement system.
- Represent and interpret data.
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

### GEOMETRY

- Graph points on the coordinate plane to solve real-world and mathematical problems.
- Classify two-dimensional figures into categories based on their properties.

### FLUENCY EXPECTATION:

- Fluently multiply multi-digit whole numbers using the standard algorithm.

## 6th Grade Overview

From the Ohio Department of Education & Workforce

### RATIO AND PROPORTIONAL RELATIONSHIPS

- Understand ratio concepts and use ratio reasoning to solve problems.

### THE NUMBER SYSTEM

- Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
- Compute fluently with multi-digit numbers and find common factors and multiples.
- Apply and extend previous understandings of numbers to the system of rational numbers.

### EXPRESSIONS AND EQUATIONS

- Apply and extend previous understandings of arithmetic to algebraic expressions.
- Reason about and solve one-variable equations and inequalities.
- Represent and analyze quantitative relationships between dependent and independent variables.

### GEOMETRY

- Solve real-world and mathematical problems involving area, surface area, and volume.

### STATISTICS AND PROBABILITY

- Develop understanding of statistical problem solving.
- Summarize and describe distributions.

### FLUENCY EXPECTATION:

- Fluently divide multi-digit numbers using a standard algorithm.
- Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.

## 7th Grade Overview

From the Ohio Department of Education & Workforce

### RATIOS AND PROPORTIONAL RELATIONSHIPS

- Analyze proportional relationships and use them to solve real-world and mathematical problems.

### THE NUMBER SYSTEM

- Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

### EXPRESSIONS AND EQUATIONS

- Use properties of operations to generate equivalent expressions.
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

### GEOMETRY

- Draw, construct and describe geometrical figures and describe the relationships between them.
- Solve real-life and mathematical problems involving angle measure, circles, area, surface area, and volume.

### STATISTICS AND PROBABILITY

- Use sampling to draw conclusions about a population.
- Broaden understanding of statistical problem solving.
- Summarize and describe distributions representing one population and draw informal comparisons between two populations.
- Investigate chance processes and develop, use, and evaluate probability models.

### FLUENCY EXPECTATION:

- Fluently use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.



## 8th Grade Overview

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### THE NUMBER SYSTEM

- Know that there are numbers that are not rational, and approximate them by rational numbers.

### EXPRESSIONS AND EQUATIONS

- Work with radicals and integer exponents.
- Understand the connections between proportional relationships, lines, and linear equations.
- Analyze and solve linear equations and pairs of simultaneous linear equations.

### FUNCTIONS

- Define, evaluate, and compare functions.
- Use functions to model relationships between quantities.

### GEOMETRY

- Understand congruence and similarity using physical models, transparencies, or geometry software.
- Understand and apply the Pythagorean Theorem.
- Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

### STATISTICS AND PROBABILITY

- Investigate patterns of association in bivariate data.

### FLUENCY EXPECTATION:

- While there aren't any specific standards that specifically address fluency in eighth grade math, we will continue to maintain students' ability to use efficient, accurate and flexible methods for computing within the context of their specific math classes.