

GO Math! Scope and Sequence

This document contains a high-level scope and sequence for the GO Math! program intended to give teachers an overview of where instructional time will be spent across the year through use of GO Math!. It provides a suggested sequence of instruction and assessments, including where NYCDOE Periodic Assessments can be used to gauge students' understanding of concepts and skills taught at benchmark moments throughout the year. Based on the Common Core Standards, Go Math! is divided into critical areas that offer a focused and coherent study of the key concepts and skills for each grade.

For each critical area, you will see the following:

- **Essential Ideas:** The key topics of the unit; chapters and lessons are built around achieving understanding and mastery of these topics.
- **Standards:** The standards listed show the main standards covered throughout the Critical Area. Instruction is focused on achieving a thorough knowledge of these standards.
- **Mathematical Practices:** While all practices are integrated into each Critical Area, the practices listed are ones that receive particular emphasis.
- **Essential Questions:** The essential question for each chapter is listed, showing the goal of each chapter.
- **Assessment Opportunities:** This listing highlights the assessments that ensure teachers can gauge student success on mastering the standards covered in the Critical Area.

Grade 3: Suggested Sequence for the <i>GO Math!</i> program	Suggested Amount of Time (in days)
Critical Area 1: Whole Number Operations	75 days
<i>NYCDOE Fall Benchmark Assessment</i>	
Critical Area 2: Understanding Fractions	20 days
Critical Area 3: Measurement	23 days
<i>NYCDOE Spring Benchmark Assessment</i>	
Critical Area 4: Geometry	11 days
<i>State Examination¹</i>	

¹ The *GO Math!* program is paced to ensure that all pre-test and post-test standards are completely and fully covered prior to testing. As the transition to the PARCC assessments progresses, schools may choose to make decisions around the pacing of units that address post-test concepts prior to the state examination in consideration of the state's testing program guidance (see <http://www.p12.nysed.gov/assessment/math/math-ei.html>).

Critical Area 1: Whole Number Operations Chapters 1–7

75 Days (Instructional Days: 61; Assessment Days: 14)

Critical Area 2: Understanding Fractions

Chapters 8–9

20 Days (Instructional Days: 16; Assessment Days: 4)

**Focus or Main
CC Standards**

Represent and solve problems involving multiplication and division.

- 3.OA.1** Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.
- 3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
- 3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

Understand properties of multiplication and the relationship between multiplication and division.

- 3.OA.5** Apply properties of operations as strategies to multiply and divide.
- 3.OA.6** Understand division as an unknown-factor problem.

Multiply and divide within 100.

- 3.OA.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

- 3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- 3.OA.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

Represent and interpret data.

- 3.MD.3** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.
- 3.MD.4** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

- 3.MD.7** Relate area to the operations of multiplication and addition.
3.MD.7c Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

Also 3.NBT.1, 3.NBT.2, 3.NBT.3

**Highlighted
Mathematical
Practices**

- MP.2** Reason abstractly and quantitatively.
- MP.4** Model with mathematics.
- MP.7** Look for and make use of structure.

**Essential
Questions**

- How can you add and subtract whole numbers and decide if an answer is reasonable? (Chapter 1)
- How can you represent and interpret data? (Chapter 2)
- How can you use multiplication to find how many in all? (Chapter 3)
- What strategies can you use to multiply? (Chapter 4)
- How can you use multiplication facts, place value, and properties to solve multiplication problems? (Chapter 5)
- How can you use division to find how many in each group or how many equal groups? (Chapter 6)
- What strategies can you use to divide? (Chapter 7)

**Assessment
Opportunities**

Show What You Know
Mid-Chapter Checkpoint
Chapter Review/Test
Chapter Test
Chapter Performance Task
Critical Area Performance Task

NYCDOE Fall Benchmark Assessment

Develop understanding of fractions as numbers.

- 3.NF.1** Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.
- 3.NF.2** Understand a fraction as a number on the number line; represent fractions on a number line diagram.
3.NF.2a Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.
3.NF.2b Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.
- 3.NF.3** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
3.NF.3a Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
3.NF.3b Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.
3.NF.3c Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
3.NF.3d Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Reason with shapes and their attributes.

- 3.G.2** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

- MP.1** Make sense of problems and persevere in solving them.
- MP.3** Construct viable arguments and critique the reasoning of others.
- MP.4** Model with mathematics.

- How can you use fractions to describe how much or how many? (Chapter 8)
- How can you compare fractions? (Chapter 9)

Show What You Know
Mid-Chapter Checkpoint
Chapter Review/Test
Chapter Test
Chapter Performance Task
Critical Area Performance Task

Critical Area 3: Measurement Chapters 10–11

23 Days (Instructional Days: 19; Assessment Days: 4)

Focus or Main CC Standards

Understand properties of multiplication and the relationship between multiplication and division.

3.OA.5 Apply properties of operations as strategies to multiply and divide.

Multiply and divide within 100.

3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

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

3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

Represent and interpret data.

3.MD.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.
3.MD.5a A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.

3.MD.5b A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.

3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

3.MD.7 Relate area to the operations of multiplication and addition.

3.MD.7a Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

3.MD.7b Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

3.MD.7c Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

3.MD.7d Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Also 3.NBT.2, 3.MD.8

Highlighted Mathematical Practices

- MP.1** Make sense of problems and persevere in solving them.
- MP.5** Use appropriate tools strategically.
- MP.8** Look for and express regularity in repeated reasoning.

Essential Questions

- How can you tell time and use measurement to describe the size of something? (Chapter 10)
- How can you solve problems involving perimeter and area? (Chapter 11)

Assessment Opportunities

- Show What You Know
- Mid-Chapter Checkpoint
- Chapter Review/Test
- Chapter Test
- Chapter Performance Task
- Critical Area Performance Task

NYCDOE Spring Benchmark Assessment

Critical Area 4: Geometry Chapters 12

11 Days (Instructional Days: 9; Assessment Days: 2)

Develop understanding of fractions as numbers.

3.NF.1 Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

3.NF.3d Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.

Reason with shapes and their attributes.

3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

MP.6
MP.7
MP.8

- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

- What are some ways to describe and classify two-dimensional shapes? (Chapter 12)

- Show What You Know
- Mid-Chapter Checkpoint
- Chapter Review/Test
- Chapter Test
- Chapter Performance Task
- Critical Area Performance Task

State Examination