



# ThinkUp!

MATH

Correlation of  
ThinkUp! Math (NCSCOS-aligned) to the  
NC Collaborative Instructional Framework  
**Grade 3**

# Correlation of ThinkUp! Math (NCSCoS-aligned) to the NC Collaborative Instructional Framework

## I Grade 3 Mathematics

The purpose of this document is to connect the resources in ThinkUp! Math (Aligned to North Carolina Standard Course of Study) to the Third Grade Instructional Framework developed by the North Carolina Collaborative for Mathematics Learning (NC<sup>2</sup>ML). This correlation assists educators in planning effective instruction for the standards identified in the NCSCoS for Grade 3 Mathematics using the clusters and sequencing suggested in the framework. When using the correlation, note the following points.

- The ThinkUp! Math Teacher Edition (TE) and Student Edition (SE) are meant to be used together to provide engaging instructional activities coupled with reinforcement of the concepts and skills. The TE provides instructional activities, formative assessment ideas, interventions, and extensions to assist in the instruction of the identified standard(s). The SE provides focused practice in a variety of formats while also addressing critical thinking through the application of the 9 Traits of Critical Thinking™.
- Instruction of the Standards for Mathematical Practice is integrated into the instruction of the content standards. The Getting Started page of each unit in the TE outlines the mathematical practices that are addressed in that unit. Note that this does not imply that the identified practices are the only mathematical practices that students may use while engaging in the rich mathematical tasks and activities offered by ThinkUp! Math.
- The use of activities and practice pages in ThinkUp! Math is designed to be flexible. Teachers do not have to use all activities or assign all unit pages to deliver effective instruction. Teachers may choose to use some activities multiple times, increasing the content rigor as appropriate.
- Though suggested student groupings and categories of activities are recommended in the ThinkUp! Math Teacher Edition, flexible use and delivery of the content allows an educator to scaffold instruction for greater student success. For example, an activity recommended for small-group instruction may be adapted for individual or large-group instruction as needed. A TE activity listed under “Interventions” might be used in the instruction of the large group if additional explorations with models are needed. The materials in ThinkUp! Math were written by seasoned educators and were purposefully designed for flexible use in the classroom.
- The NC Collaborative Instructional Framework occasionally includes boundaries for standards, while the units in ThinkUp! Math are built to comprehensively cover each standard in its entirety. Asterisks have been placed next to the impacted unit titles to inform educators of content that may need modification to fit within the scope of the framework.

**Cluster 1: Building Mathematical Community and Understanding Equal Groups** (Duration: 3–4 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.OA.1**

For products of whole numbers with two factors up to and including 10:

- Interpret the factors as representing the number of equal groups and the number of objects in each group.

**Unit 1 – Interpret Products of Whole Numbers \***

**Teacher Edition (pp. 1–12)**

**Student Edition (pp. 1–10)**

*\*Note that this concept is also addressed in Cluster 4. In this cluster, the focus is on fluency with multiplication facts containing 2, 5, and 10 as factors. Students use arrays, models, and repeated addition to represent other facts.*

**NC.3.OA.1**

For products of whole numbers with two factors up to and including 10:

- Illustrate and explain strategies including arrays, repeated addition, decomposing a factor, and applying the commutative and associative properties.

**Unit 2 – Illustrate and Explain Multiplication Strategies \***

**Teacher Edition (pp. 13–25)**

**Student Edition (pp. 11–20)**

*\*Note that this concept is also addressed in Cluster 4. In this cluster, the focus is on fluency with multiplication facts containing 2, 5, and 10 as factors. Students use arrays, models, and repeated addition to represent other facts.*

## Cluster 1: Building Mathematical Community and Understanding Equal Groups (Duration: 3–4 weeks)

### NCSCoS

#### NC.3.OA.3

Represent, interpret, and solve one-step problems involving multiplication and division.

- Solve multiplication word problems with factors up to and including 10. Represent the problem using arrays, pictures, and/or equations with a symbol for the unknown number to represent the problem.
- Solve division word problems with a divisor and quotient up to and including 10. Represent the problem using arrays, pictures, and repeated subtraction.

### ThinkUp! Math (NCSCoS-aligned)

#### Unit 4 – Interpret Products of Whole Numbers \*

##### Teacher Edition

- Getting Started (pp. 39–40) \*
- Instruction: Concept Exploration and Formative Assessment (p. 41) \*
- Instruction: Vocabulary Mastery term list, Activity, and Formative Assessment (p. 42) \*
- Instruction: Literature Connection (p. 42)
- Instruction: Concept Development Activities and Formative Assessment (p. 43) \*
- Instruction: Concept Application/Concept Practice (p. 44) \*
- Assessment: Concept Check and Test-Taking Tips (p. 45)
- Intervention Activities 1–4 and Formative Assessment (pp. 45–46)
- Intervention Activity 5 (p. 45) \*
- Extension: Reflect on My Learning (p. 46)
- Extension: Extending Student Thinking Activity (p. 46) \*
- Extension: Home Connection (p. 47)
- Extension: Teacher Reflection (p. 47)
- Answer Keys and Codings (pp. 48–49)

##### Student Edition

- Getting Started (p. 31) \*
- Instruction: Concept Exploration p. 32) \*
- Instruction: Vocabulary Mastery (p. 33)
- Instruction: Concept Development (p. 34) \*
- Instruction: Concept Application (p. 35) \*
- Instruction: Concept Practice (p. 36) \*
- Instruction: Motivation Station (p. 37)
- Extension: Math Challenge (p. 38) \*
- Extension: Reflection on My Learning (p. 38)
- Extension: Reflection on Critical Thinking (p. 38)
- Assessment: Concept Check (pp. 39–40) \*

*\*Limit representations of multiplication word problems to arrays, and pictures. Limit representations of division word problems to arrays, pictures, repeated subtraction. The representation of division with equations is delayed until Cluster 4.*

#### Supporting Standards

**Cluster 1: Building Mathematical Community and Understanding Equal Groups** (Duration: 3–4 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**NC.3.OA.2**

For whole-number quotients of whole numbers with a one-digit divisor and a one-digit quotient:

- Interpret the divisor and quotient in a division equation as representing the number of equal groups and the number of objects in each group.
- Illustrate and explain strategies including arrays, repeated addition or subtraction, and decomposing a factor.

**Unit 3 – Interpret Whole-Number Quotients \***

**Teacher Edition (pp. 26–38)**

**Student Edition (pp. 21–30)**

*\*Note that the representation of division with symbolic division equations is delayed until Cluster 4.*

**NC.3.OA.9**

Interpret patterns of multiplication on a hundreds board and/or multiplication table.

*The Standards for Mathematical Practice are integrated into the instruction of the content standards.*

**Unit 9 – Interpret Patterns of Multiplication**

**Teacher Edition (pp. 101–112)**

**Student Edition (pp. 81–90)**

*\*Note that in Cluster 1, the activities for this standard should focus on fluency with multiplication facts with factors of 2, 5, and 10. Activities to develop mastery with other facts will be addressed in Cluster 4.*

**Cluster 2: Using Data to Solve Problems** (Duration: 1–2 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.MD.3**

Represent and interpret scaled picture and bar graphs:

- Collect data by asking a question that yields data in up to four categories.
- Make a representation of data and interpret data in a frequency table, scaled picture graph, and/or scaled bar graph with axes provided.
- Solve one and two-step “how many more” and “how many less” problems using information from these graphs.

**Unit 20 – Draw Scaled Picture and Bar Graphs**

**Teacher Edition (pp. 233–243)**

**Student Edition (pp. 191–200)**

**Supporting Standards**

**NC.3.NBT.2**

Add and subtract whole numbers up to and including 1,000.

- Use estimation strategies to assess reasonableness of answers.
- Model and explain how the relationship between addition and subtraction can be applied to solve addition and subtraction problems.
- Use expanded form to decompose numbers and then find sums and differences.

In Cluster 2, this standard is addressed with the “how many more” and “how many less” problems using information from the graphs in Unit 20. This standard will be further addressed in Cluster 3.

**NC.3.OA.8**

Solve two-step word problems using addition and subtraction, and representing problems using equations with a symbol for the unknown number.

*The Standards for Mathematical Practice are integrated into the instruction of the content standards.*

In Cluster 2, this supporting standard is addressed with the “how many more” and “how many less” problems using information from the graphs as addressed in Unit 20. It is suggested that teachers also make use of “attendance graphs” in which a question is posed on a poster showing up to four categories. Students place rectangular sticky notes in columns/rows to form a bar graph or shaped sticky notes to form a picture graph. The teacher uses the information from the graph to ask a variety of one-step and two-step addition and subtraction problems. This standard will also be addressed in Cluster 3.

**Cluster 3: Stories with Addition and Subtraction** (Duration: 4–5 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.NBT.2**

Add and subtract whole numbers up to and including 1,000.

- Use estimation strategies to assess reasonableness of answers.
- Model and explain how the relationship between addition and subtraction can be applied to solve addition and subtraction problems.
- Use expanded form to decompose numbers and then find sums and differences.

**Unit 10 – Estimate Sums and Differences**

**Teacher Edition (pp. 113–124)**

**Student Edition (pp. 91–100)**

**Unit 11 – Add and Subtract Whole Numbers**

**Teacher Edition (pp. 125–136)**

**Student Edition (pp. 101–110)**

**NC.3.OA.8**

Solve two-step word problems involving addition, subtraction, and multiplication, representing problems using equations with a symbol for the unknown number.

*The Standards for Mathematical Practice are integrated into the instruction of the content standards.*

**Unit 8 – Solve Two-Step Problems: Add, Subtract, Multiply \***

**Teacher Edition**

- Getting Started (pp. 88–89) \*
- Instruction: Concept Exploration and Formative Assessment (p. 90)
- Instruction: Vocabulary Mastery term list, Activity, and Formative Assessment (p. 90) \*
- Instruction: Literature Connection (p. 91) \*
- Instruction: Concept Development Activities and Formative Assessment (pp. 92–93) \*
- Instruction: Concept Application/Concept Practice (p. 94) \*
- Assessment: Concept Check and Test-taking Tips (p. 95)
- Intervention Activities and Formative Assessment (p. 95)
- Extension: Reflect on My Learning (p. 96) \*
- Extension: Extending Student Thinking Activity (p. 96) \*
- Extension: Home Connection (p. 97) \*
- Extension: Teacher Reflection (p. 97)
- Answer Keys and Codings (pp. 98–100)

**Student Edition**

- Getting Started (p. 71) \*
- Instruction: Concept Exploration p. 72) \*
- Instruction: Vocabulary Mastery (p. 73) \*
- Instruction: Concept Development (p. 74) \*
- Instruction: Concept Application (p. 75) \*
- Instruction: Concept Practice (p. 76) \*
- Instruction: Motivation Station (p. 77)
- Extension: Math Challenge (p. 78) \*
- Extension: Reflection on My Learning (p. 78) \*
- Extension: Reflection on Critical Thinking (p. 78)
- Assessment: Concept Check (pp. 79–80) \*

*\*Problem situations should focus on the operations of addition and subtraction, and some simple multiplication. This standard will be addressed again in Cluster 4. Note that two-step word problems using addition and subtraction are incorporated into Unit 11 which is addressed in the previous standard (NC.3.NBT.2).*

**Cluster 4: Making Sense of Multiplication and Division** (Duration: 5–6 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.OA.1**

For products of whole numbers with two factors up to and including 10:

- Interpret the factors as representing the number of equal groups and the number of objects in each group.
- Illustrate and explain strategies including arrays, repeated addition, decomposing a factor, and applying the commutative and associative properties.

**Unit 1 – Interpret Products of Whole Numbers \***

**Teacher Edition (pp. 1–12)**

**Student Edition (pp. 1–10)**

**Unit 2 – Illustrate and Explain Multiplication Strategies \***

**Teacher Edition (pp. 13–25)**

**Student Edition (pp. 11–20)**

*\*Note that these concepts were previously addressed in Cluster 1, with the focus on fluency with multiplication facts containing 2, 5, and 10 as factors. In this cluster, students begin to build fluency with other facts.*

**NC.3.OA.2**

For whole-number quotients of whole numbers with a one-digit divisor and a one-digit quotient:

- Interpret the divisor and quotient in a division equation as representing the number of equal groups and the number of objects in each group.
- Illustrate and explain strategies including arrays, repeated addition or subtraction, and decomposing a factor.

**Unit 3 – Interpret Whole-Number Quotients**

**Teacher Edition (pp. 26–38)**

**Student Edition (pp. 21–30)**

**NC.3.OA.3**

Represent, interpret, and solve one-step problems involving multiplication and division.

- Solve multiplication word problems with factors up to and including 10. Represent the problem using arrays, pictures, and/or equations with a symbol for the unknown number to represent the problem.
- Solve division word problems with a divisor and quotient up to and including 10. Represent the problem using arrays, pictures, repeated subtraction and/or equations with a symbol for the unknown number to represent the problem.

**Unit 4 – Solve One-Step Problems: Multiply and Divide**

**Teacher Edition (pp. 39–49)**

**Student Edition (pp. 31–40)**



**Cluster 4: Making Sense of Multiplication and Division** (Duration: 5–6 weeks)

NCSCoS	ThinkUp! Math (NCSCoS-aligned)
<p><b>NC.3.OA.6</b></p> <p>Solve an unknown-factor problem, by using division strategies and/or changing it to a multiplication problem.</p>	<p><b>Unit 5 – Solve an Unknown-Factor Problem</b> <b>Teacher Edition (pp. 50–62)</b> <b>Student Edition (pp. 41–50)</b></p>
<p><b>NC.3.OA.7</b></p> <p>Demonstrate fluency with multiplication and division with factors, quotients and divisors up to and including 10.</p> <ul style="list-style-type: none"><li>• Know from memory all products with factors up to and including 10.</li><li>• Illustrate and explain using the relationship between multiplication and division.</li><li>• Determine the unknown whole number in a multiplication or division equation relating three whole numbers.</li></ul>	<p><b>Unit 6 – Multiply and Divide Numbers Up to and Including 10</b> <b>Teacher Edition (pp. 63–74)</b> <b>Student Edition (pp. 51–60)</b></p> <p><b>Unit 7 – Determine the Unknown in Multiplication and Division Equations</b> <b>Teacher Edition (pp. 75–87)</b> <b>Student Edition (pp. 61–70)</b></p>
<p><b>NC.3.OA.8</b></p> <p>Solve two-step word problems using addition, subtraction, and multiplication, representing problems using equations with a symbol for the unknown number.</p>	<p><b>Unit 8 – Solve Two-Step Problems: Add, Subtract, and Multiply</b> <b>Teacher Edition (pp. 88–100)</b> <b>Student Edition (pp. 71–80)</b></p>
<p><b>NC.3.OA.9</b></p> <p>Interpret patterns of multiplication on a hundreds board and/or multiplication table.</p>	<p><b>Unit 9 – Interpret Patterns of Multiplication</b> <b>Teacher Edition (pp. 101–112)</b> <b>Student Edition (pp. 81–90)</b></p>
<p><b>NC.3.NBT.3</b></p> <p>Use concrete and pictorial models, based on place value and the properties of operations, to find the product of a one-digit whole number by a multiple of 10 in the range 10–90.</p> <p><i>The Standards for Mathematical Practice are integrated into the instruction of the content standards.</i></p>	<p><b>Unit 12 – Multiply One-Digit Numbers by Multiples of 10</b> <b>Teacher Edition (pp. 137–148)</b> <b>Student Edition (pp. 111–120)</b></p>

**Cluster 5: Reasoning with Shapes and Their Attributes** (Duration 1–2 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.G.1**

Reason with two-dimensional shapes and their attributes.

- Investigate, describe, and reason about composing triangles and quadrilaterals and decomposing quadrilaterals.
- Recognize and draw examples and non-examples of types of quadrilaterals including rhombuses, rectangles, squares, parallelograms, and trapezoids.

*The Standards for Mathematical Practice are integrated into the instruction of the content standards.*

**Unit 24 – Describe and Identify Two-Dimensional Shapes**

**Teacher Edition (pp. 279–291)**

**Student Edition (pp. 231–240)**

**Cluster 6: Applying the Operations to Area and Perimeter** (Duration: 2–3 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.MD.5**

Find the area of a rectangle with whole-number side lengths by tiling without gaps or overlaps and counting unit squares.

**Unit 21 – Count Unit Squares to Determine Areas**

**Teacher Edition (pp. 244–255)**

**Student Edition (pp. 201–210)**

**NC.3.MD.7**

Relate area to the operations of multiplication and addition.

**Unit 22 – Multiply to Find Areas**

**Teacher Edition (pp. 256–267)**

**Student Edition (pp. 211–220)**

- 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.
- Multiply side lengths to find area of rectangles with whole-number side lengths in the context of problem solving and represent whole-number products as rectangular areas in mathematical reasoning.
- Use tiles and/or arrays to illustrate and explain that the area of a rectangle can be found by partitioning it into two smaller rectangles, and that the area of the larger rectangle is the sum of the two smaller rectangles.

**NC.3.MD.8**

Solve problems involving perimeters of polygons, including finding the perimeter given the side lengths, and finding an unknown side length.

**Unit 23 – Solve Perimeter Problems**

**Teacher Edition (pp. 268–278)**

**Student Edition (pp. 221–230)**

*The Standards for Mathematical Practice are integrated into the instruction of the content standards.*

**Cluster 7: Understanding Fractions as Parts of a Whole** (Duration: 4–5 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.NF.1**

Interpret unit fractions with denominators of 2, 3, 4, 6, and 8 as quantities formed when a whole is partitioned into equal parts;

- Explain that a unit fraction is one of those parts.
- Represent and identify unit fractions using area and length models.

**Unit 13 – Understand Unit Fractions**

**Teacher Edition (pp. 149–161)**

**Student Edition (pp. 121–130)**

**NC.3.NF.2**

Interpret fractions with denominators of 2, 3, 4, 6, and 8 using area and length models.

- Using an area model, explain that the numerator of a fraction represents the number of equal parts of the unit fraction.
- Using a number line, explain that the numerator of a fraction represents the number of lengths of the unit fraction from 0.

**Unit 14 – Represent Fractions**

**Teacher Edition (pp. 162–172)**

**Student Edition (pp. 131–140)**

**NC.3.NF.3**

Represent equivalent fractions with area and length models by:

- Composing and decomposing fractions into equivalent fractions using related fractions: halves, fourths and eighths; thirds and sixths.
- Explaining that a fraction with the same numerator and denominator equals one whole.
- Expressing whole numbers as fractions and recognize fractions that are equivalent to whole numbers.

**Unit 15 – Represent Equivalent Fractions**

**Teacher Edition (pp. 173–185)**

**Student Edition (pp. 141–150)**

**NC.3.NF.4**

Compare two fractions with the same numerator or the same denominator by reasoning about their size, using area and length models, and using the  $>$ ,  $<$ , and  $=$  symbols. Recognize that comparisons are valid only when the two fractions refer to the same whole with denominators: halves, fourths and eighths; thirds and sixths.

*The Standards for Mathematical Practice are integrated into the instruction of the content standards.*

**Unit 16 – Compare Fractions**

**Teacher Edition (pp. 186–196)**

**Student Edition (pp. 151–160)**

**Cluster 8: Using Tools to Measure Length, Weight, and Capacity** (Duration: 2–3 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.MD.2**

Solve problems involving customary measurement.

Estimate and measure lengths in customary units to the quarter-inch and half-inch, and feet and yards to the whole unit.

- Estimate and measure capacity and weight in customary units to a whole number: cups, pints, quarts, gallons, ounces, and pounds.
- Add, subtract, multiply, or divide to solve one-step word problems involving whole number measurements of length, weight, and capacity in the same customary units.

*The Standards for Mathematical Practice are integrated into the instruction of the content standards.*

**Unit 18 – Measure and Solve Length Problems**

**Teacher Edition (pp. 209–220)**

**Student Edition (pp. 171–180)**

**Unit 19 – Measure and Solve Weight and Capacity Problems**

**Teacher Edition (pp. 221–232)**

**Student Edition (pp. 181–190)**

**Cluster 9: Understanding Time** (Duration: 1–2 weeks)

**NCSCoS**

**ThinkUp! Math (NCSCoS-aligned)**

**Content Standards**

**NC.3.MD.1**

Tell and write time to the nearest minute. Solve word problems involving addition and subtraction of time intervals within the same hour.

*The Standards for Mathematical Practice are integrated into the instruction of the content standards.*

**Unit 17 – Solve Problems Involving Time**

**Teacher Edition (pp. 197–208)**

**Student Edition (pp. 161–170)**