



ThinkUp!TM

MATH

Correlation of
ThinkUp! Math (NCSCOS-aligned) to the
NC Collaborative Instructional Framework
Grade 6

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

I Grade 6 Mathematics

The purpose of this document is to connect the resources in ThinkUp! Math (Aligned to North Carolina Standard Course of Study) to the Sixth Grade Instructional Framework developed by the North Carolina Collaborative for Mathematics Learning (NC²ML). This correlation assists educators in planning effective instruction for the standards identified in the NCSCoS for Grade 6 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: Reasoning with Area and Surface Area Cluster (Time Frame: 2 weeks)

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.G.1

Create geometric models to solve real-world and mathematical problems to:

- Find the area of triangles by composing into rectangles and decomposing into right triangles.
- Find the area of special quadrilaterals and polygons by decomposing into triangles or rectangles.

Unit 24 – Find Area to Solve Problems

- ☑ Teacher Edition (pp. 269–279)
- ☑ Student Edition (pp. 231–240)

NC.6.G.4

Represent right prisms and right pyramids using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

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

Unit 27 – Use Nets to Find Surface Area

- ☑ Teacher Edition (pp. 304–315)
- ☑ Student Edition (pp. 261–270)

Cluster 2: Reasoning with Factors and Multiples Cluster (Time Frame: 1 week)

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.NS.4

Unit 8 – Find and Apply Prime Factorization, GCF, and LCM

Understand and use prime factorization and the relationships between factors to:

- Find the unique prime factorization for a whole number.
- Find the greatest common factor of two whole numbers less than or equal to 100.
- Use the greatest common factor and the distributive property to rewrite the sum of two whole numbers, each less than or equal to 100.
- Find the least common multiple of two whole numbers less than or equal to 12 to add and subtract fractions with unlike denominators.

- ☑ Teacher Edition (pp. 82–93)
- ☑ Student Edition (pp. 71–80)

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

Cluster 3: Ratio and Reasoning Center (Time Frame: 5 weeks)

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.RP.1

Understand the concept of a ratio and use ratio language to:

- Describe a ratio as a multiplicative relationship between two quantities.
- Model a ratio relationship using a variety of representations.

Unit 1 – Understand Ratios and Use Ratio Language

- ☑ Teacher Edition (pp. 1–8)
- ☑ Student Edition (pp. 8–13)

NC.6.RP.2

Understand that ratios can be expressed as equivalent unit ratios by finding and interpreting both unit ratios in context.

Unit 2 – Find Unit Ratios Using Equivalent Ratios

- ☑ Teacher Edition (pp. 13–24)
- ☑ Student Edition (pp. 11–20)

NC.6.RP.3

Use ratio reasoning with equivalent whole-number ratios to solve real-world and mathematical problems by:

- Creating and using a table to compare ratios.
- Finding missing values in the tables.
- Using a unit ratio.
- Converting and manipulating measurements using given ratios.
- Plotting the pairs of values on the coordinate plane.

Unit 3 – Use Ratio Reasoning with Equivalent Ratios

- ☑ Teacher Edition (pp. 25–36)
- ☑ Student Edition (pp. 21–30)

NC.6.RP.4

- Use ratio reasoning to solve real-world and mathematical problems with percents by:
- Understanding and finding a percent of a quantity as a ratio per 100.
- Using equivalent ratios, such as benchmark percents (50%, 25%, 10%, 5%, 1%), to determine a part of any given quantity.
- Finding the whole, given a part and the percent.

Unit 4 – Use Ratio Reasoning to Solve Problems with Percents

- ☑ Teacher Edition (pp. 37–48)
- ☑ Student Edition (pp. 31–40)

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

Cluster 4: Division of Fractions Conceptions Clust (Time Frame: 2 weeks)

NCSCoS

NC.6.NS.1

Use visual models and common denominators to:

- Interpret and compute quotients of fractions.
- Solve real-world and mathematical problems involving division of fractions.

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

ThinkUp! Math (NCSCoS-aligned)

Unit 5 – Use Models and Common Denominators to Divide Fractions

☑ Teacher Edition (pp. 49–59)

☑ Student Edition (pp. 41–50)

Cluster 5: Making Sense of Decimal Computations Cluster (*Time Frame: 3 weeks*)

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.NS.2

Fluently divide using long division with a minimum of a four-digit dividend and interpret the quotient and remainder in context.

Unit 6 – Divide Multi-Digit Numbers

- ☑ Teacher Edition (pp. 60–70)
- ☑ Student Edition (pp. 51–60)

NC.6.NS.3

Apply and extend previous understandings of decimals to develop and fluently use the standard algorithms for addition, subtraction, multiplication and division of decimals.

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

Unit 7 – Perform Operations with Decimal Numbers

- ☑ Teacher Edition (pp. 71–81)
- ☑ Student Edition (pp. 61–70)

Cluster 6: Integer and Rational Number Reasoning Cluster (Time Frame: 3 weeks)

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.NS.5

Understand and use rational numbers to:

- Describe quantities having opposite directions or values.
- Represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
- Understand the absolute value of a rational number as its distance from 0 on the number line to:
 - Interpret absolute value as magnitude for a positive or negative quantity in a real-world context.
 - Distinguish comparisons of absolute value from statements about order.

Unit 9 – Understand Positive and Negative Numbers and Absolute Value

- ☑ Teacher Edition (pp. 94–104)
- ☑ Student Edition (pp. 81–90)

NC.6.NS.6

Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane.

On a number line:

- Recognize opposite signs of numbers as indicating locations on opposite sides of 0 and that the opposite of the opposite of a number is the number itself.
- Find and position rational numbers on a horizontal or vertical number line.

Unit 10 – Understand Rational Numbers as Points on the Number Line

- ☑ Teacher Edition (pp. 105–115)
- ☑ Student Edition (pp. 91–100)

NC.6.NS.7

Understand ordering of rational numbers.

- Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
- Write, interpret, and explain statements of order for rational numbers in real-world contexts.

Unit 12 – Interpret Statements of Inequality

- ☑ Teacher Edition (pp. 128–139)
- ☑ Student Edition (pp. 111–120)

Cluster 6: Integer and Rational Number Reasoning Cluster (Time Frame: 3 weeks)

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.NS.9

Understand additive inverses when adding and subtracting integers.

Describe situations in which opposite quantities combine to make 0.

Understand $pp + qq$ as the number located a distance q from p , in the positive or negative direction depending on the sign of q . Show that a number and its additive inverse create a zero pair.

Understand subtraction of integers as adding the additive inverse, $pp - qq = pp + (-qq)$. Show that the distance between two integers on the number line is the absolute value of their difference.

Use models to add and subtract integers from -20 to 20 and describe real-world contexts using sums and differences.

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

Unit 14 – Use Models to Add and Subtract Integers

Teacher Edition (pp. 153–164)

Student Edition (pp. 131–140)

Cluster 7: Making Sense of Coordinate Planes Cluster (Time Frame: 2 weeks)

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.NS.6

Understand rational numbers as points on the number line and as ordered pairs on a coordinate plane.

On a coordinate plane:

- Understand signs of numbers in ordered pairs as indicating locations in quadrants.
- Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

Find and position pairs of rational numbers on a coordinate plane.

Unit 11 – Understand Rational Numbers as Ordered Pairs on a Coordinate Plane

☑ Teacher Edition (pp. 116–127)

☑ Student Edition (pp. 101–110)

NC.6.NS.8

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Unit 13 – Graph Points on the Coordinate Plane

☑ Teacher Edition (pp. 140–152)

☑ Student Edition (pp. 121–130)

NC.6.G.3

Use the coordinate plane to solve real-world and mathematical problems by:

- Drawing polygons in the coordinate plane given coordinates for the vertices.
- Using coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.

Unit 26 – Use the Coordinate Plane to Solve Problems

☑ Teacher Edition (pp. 291–303)

☑ Student Edition (pp. 251–260)

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

Cluster 8: Reasoning with Algebraic Expressions Cluster (Time Frame: 3 weeks)

| NCSCoS | ThinkUp! Math (NCSCoS-aligned) |
|--|--|
| <p>NC.6.EE.1</p> <p>Write and evaluate numerical expressions, with and without grouping symbols, involving whole-number exponents.</p> | <p>Unit 15 – Write and Evaluate Expressions Involving Exponents</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 165–175)☑ Student Edition (pp. 141–150) |
| <p>NC.6.EE.2</p> <p>Write, read, and evaluate algebraic expressions.</p> <ul style="list-style-type: none">• Write expressions that record operations with numbers and with letters standing for numbers.• Identify parts of an expression using mathematical terms and view one or more of those parts as a single entity.• Evaluate expressions at specific values of their variables using expressions that arise from formulas used in real-world problems. | <p>Unit 16 – Write, Read, and Evaluate Algebraic Expressions</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 176–187)☑ Student Edition (pp. 151–160) |
| <p>NC.6.EE.3</p> <p>Apply the properties of operations to generate equivalent expressions without exponents.</p> | <p>Unit 17 – Apply the Properties of Operations</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 188–199)☑ Student Edition (pp. 161–170) |
| <p>NC.6.EE.4</p> <p>Identify when two expressions are equivalent and justify with mathematical reasoning</p> | <p>Unit 18 – Identify When Two Expressions Are Equivalent</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 200–210)☑ Student Edition (pp. 171–180) |
| <p>NC.6.EE.6</p> <p>Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.</p> <p><i>The Standards for Mathematical Practice are integrated into the instruction of the content standards.</i></p> | <p>Unit 20 – Use Variables and Write Expressions</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 222–233)☑ Student Edition (pp. 191–200) |

Cluster 9: Reasoning with Algebraic Equations Cluster (Time Frame: 5 weeks)

| NCSCoS | ThinkUp! Math (NCSCoS-aligned) |
|--|---|
| <p>NC.6.EE.5</p> <p>Use substitution to determine whether a given number in a specified set makes an equation true.</p> | <p>Unit 19 – Determine If Given Numbers Make Equations True</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 188–199)☑ Student Edition (pp. 181–190) |
| <p>NC.6.EE.7</p> <p>Solve real-world and mathematical problems by writing and solving equations of the form:</p> <ul style="list-style-type: none">• $xx + pp = qq$ in which pp, qq and xx are all nonnegative rational numbers; and, $pp \cdot xx = qq$ for cases in which pp, qq and xx are all nonnegative rational numbers. | <p>Unit 21 – Solve Problems by Writing and Solving Equations</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 234–245)☑ Student Edition (pp. 201–210) |
| <p>NC.6.EE.8</p> <p>Reason about inequalities by:</p> <ul style="list-style-type: none">• Using substitution to determine whether a given number in a specified set makes an inequality true.• Writing an inequality of the form $xx > cc$ or $xx < cc$ to represent a constraint or condition in a real-world or mathematical problem.• Recognizing that inequalities of the form $xx > cc$ or $xx < cc$ have infinitely many solutions.• Representing solutions of inequalities on number line diagrams. | <p>Unit 22 – Write an Inequality to Represent a Problem</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 246–256)☑ Student Edition (pp. 211–220) |
| <p>NC.6.EE.9</p> <p>Represent and analyze quantitative relationships by:</p> <ul style="list-style-type: none">• Using variables to represent two quantities in a real-world or mathematical context that change in relationship to one another.• Analyze the relationship between quantities in different representations (context, equations, tables, and graphs). | <p>Unit 23 – Analyze the Relationship Between Two Quantities</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 257–268)☑ Student Edition (pp. 221–230) |

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

Cluster 10: Making Sense of Volume Cluster (*Time Frame: 2 weeks*)

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.G.2

Apply and extend previous understandings of the volume of a right rectangular prism to find the volume of right rectangular prisms with fractional edge lengths. Apply this understanding to the context of solving real-world and mathematical problems.

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

Unit 25 – Find Volume to Solve Problems

- ☑ Teacher Edition (pp. 280–290)
- ☑ Student Edition (pp. 241–250)

Cluster 11: Statistical Reasoning Cluster (Time Frame: 2 weeks)

| NCSCoS | ThinkUp! Math (NCSCoS-aligned) |
|---|---|
| <p>NC.6.SP.1</p> <p>Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.</p> | <p>Unit 28 – Recognize a Statistical Question</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 316–326)☑ Student Edition (pp. 271–280) |
| <p>NC.6.SP.2</p> <p>Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.</p> | <p>Unit 29 – Understand Center, Spread, and Shape of Data</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 327–340)☑ Student Edition (pp. 281–290) |
| <p>NC.6.SP.3</p> <p>Understand that both a measure of center and a description of variability should be considered when describing a numerical data set.</p> <p>a. Determine the measure of center of a data set and understand that it is a single number that summarizes all the values of that data set.</p> <ul style="list-style-type: none">• Understand that a mean is a measure of center that represents a balance point or fair share of a data set and can be influenced by the presence of extreme values within the data set.• Understand the median as a measure of center that is the numerical middle of an ordered data set. <p>b. Understand that describing the variability of a data set is needed to distinguish between data sets in the same scale, by comparing graphical representations of different data sets in the same scale that have similar measures of center, but different spreads.</p> | <p>Unit 30 – Understand Measures of Center and Variability</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 341–351)☑ Student Edition (pp. 291–300) |
| <p>NC.6.SP.4</p> <p>Display numerical data in plots on a number line.</p> <ul style="list-style-type: none">• Use dot plots, histograms, and box plots to represent data.• Compare the attributes of different representations of the same data. | <p>Unit 31 – Display Data in Plots</p> <ul style="list-style-type: none">☑ Teacher Edition (pp. 342–364)☑ Student Edition (pp. 301–310) |

Cluster 11: Statistical Reasoning Cluster *(Time Frame: 2 weeks)*

NCSCoS

ThinkUp! Math (NCSCoS-aligned)

NC.6.SP.5 Summarize numerical data sets in relation to their context.

Unit 32 – Describe Data and Analyze Center and Variability

a. Describe the collected data by:

- ☑ Teacher Edition (pp. 365–376)
- ☑ Student Edition (pp. 311–320)

- Reporting the number of observations in dot plots and histograms.
- Communicating the nature of the attribute under investigation, how it was measured, and the units of measurement.

b. Analyze center and variability by:

- Giving quantitative measures of center, describing variability, and any overall pattern, and noting any striking deviations.
- Justifying the appropriate choice of measures of center using the shape of the data distribution.

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