EUREKA MATH™

GREAT MINDS

ABOUT *EUREKA MATH*

Created by the nonprofit Great Minds, *Eureka Math* helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students' mastery of math.

Teachers and students using *Eureka Math* find the trademark "Aha!" moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

ALIGNED

Eureka Math is the only curriculum found by EdReports.org to align fully with the Common Core State Standards for Mathematics for all grades, Kindergarten through Grade 8. Great Minds offers detailed analyses which demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

DATA

Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

FULL SUITE OF RESOURCES

As a nonprofit, Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at greatminds.org/math/curriculum.

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

GRADE K MATHEMATICS

The majority of the Grade K Tennessee State Mathematics Standards are fully covered by the Grade K *Eureka Math* curriculum. The areas where the Grade K Tennessee State Mathematics Standards and Grade K *Eureka Math* do not align will require the use of *Eureka Math* content from other grade levels. A detailed analysis of alignment is provided in the table below.

INDICATORS

- Green indicates that the Tennessee standard is fully addressed in *Eureka Math*.
- Yellow indicates that the Tennessee standard may not be completely addressed in *Eureka Math*.
- Red indicates that the Tennessee standard is not addressed in *Eureka Math*.
- Blue indicates there is a discrepancy between the grade level at which this standard is addressed in the Tennessee standards and in *Eureka Math*.

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
1: Make sense of problems and persevere in solving them. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.	Lessons in every module engage students in making sense of problems and persevering in solving them as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 1, which is specifically addressed in the following modules: GK M2: Two-Dimensional and Three-Dimensional Shapes GK M4: Number Pairs, Addition and Subtraction to 10 GK M6: Analyzing, Comparing, and Composing Shapes

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
2: Reason abstractly and quantitatively. Mathematically proficient students make sense of the quantities and their relationships in problem situations. Students bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.	Lessons in every module engage students in reasoning abstractly and quantitatively as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 2, which is specifically addressed in the following modules: GK M1: Numbers to 10 GK M3: Comparison of Length, Weight, Capacity, and Numbers to 10 GK M4: Number Pairs, Addition and Subtraction to 10 GK M5: Numbers 10–20 and Counting to 100

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
3: Construct viable arguments and critique the reasoning of others. Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and, if there is a flaw in an argument, explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.	Lessons in every module engage students in constructing viable arguments and critiquing the reasoning of others as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 3, which is specifically addressed in the following modules: GK M1: Numbers to 10 GK M2: Two-Dimensional and Three-Dimensional Shapes GK M3: Comparison of Length, Weight, Capacity, and Numbers to 10 GK M5: Numbers 10–20 and Counting to 100

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
4: Model with mathematics. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts, and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.	Lessons in every module engage students in modeling with mathematics as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 4, which is specifically addressed in the following modules: GK M1: Numbers to 10 GK M4: Number Pairs, Addition and Subtraction to 10 GK M5: Numbers 10–20 and Counting to 100 GK M6: Analyzing, Comparing, and Composing Shapes

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
5: Use appropriate tools strategically. Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a compass, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.	Lessons in every module engage students in using appropriate tools strategically as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 5, which is specifically addressed in the following modules: GK M3: Comparison of Length, Weight, Capacity, and Numbers to 10 GK M4: Number Pairs, Addition and Subtraction to 10

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
6: Attend to precision. Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.	Lessons in every module engage students in attending to precision as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 6, which is specifically addressed in the following modules: GK M2: Two-Dimensional and Three-Dimensional Shapes GK M3: Comparison of Length, Weight, Capacity, and Numbers to 10 GK M6: Analyzing, Comparing, and Composing Shapes

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
7: Look for and make use of structure. Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.	Lessons in every module engage students in looking for and making use of structure as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 7, which is specifically addressed in the following modules: GK M1: Numbers to 10 GK M2: Two-Dimensional and Three-Dimensional Shapes GK M3: Comparison of Length, Weight, Capacity, and Numbers to 10 GK M4: Number Pairs, Addition and Subtraction to 10 GK M5: Numbers 10–20 and Counting to 100 GK M6: Analyzing, Comparing, and Composing Shapes

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
8: Look for and express regularity in repeated reasoning. Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.	Lessons in every module engage students in looking for and expressing regularity in repeated reasoning as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 8, which is specifically addressed in the following modules: GK M1: Numbers to 10 GK M4: Number Pairs, Addition and Subtraction to 10

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Counting and Cardinality	**Cluster: Know number names and the counting sequence.**	
	K.CC.A.1 Count to 100 by ones, fives, and tens. Count backward from 10.	GK M5 Topic D: Extend the Say Ten and Regular Count Sequence to 100 G2 M7 Lesson 6: Recognize the value of coins and count up to find their total value. G2 M8 Topic D: Application of Fractions to Tell Time Note: Students build fluency of skip-counting with fives and tens in a variety of fluency activities in Grades 1 and 2.
	K.CC.A.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	GK M1 Topic G: *One More* with Numbers 0–10 GK M5 Lesson 13: Show, count, and write to answer *how many* questions in linear and array configurations. GK M5 Topic D: Extend the Say Ten and Regular Count Sequence to 100

Domain	Standards for Mathematical Content		Aligned Components of *Eureka Math*
	K.CC.A.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0–20.		GK M1 Topic D: The Concept of Zero and Working with Numbers 0–5 GK M1 Topic E: Working with Numbers 6–8 in Different Configurations GK M1 Topic F: Working with Numbers 9–10 in Different Configurations GK M5 Topic B: Compose Numbers 11–20 from 10 Ones and Some Ones; Represent and Write Teen Numbers GK M5 Lesson 14: Show, count, and write to answer *how many* questions with up to 20 objects in circular configurations.
	Cluster: Count to tell the number of objects.		
	K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality.		
	a. When counting objects, say the number names in the standard order, using one-to-one correspondence.		GK M1: Numbers to 10 GK M6 Lesson 4: Describe the relative position of shapes using ordinal numbers.
	b. Recognize that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.		GK M1: Numbers to 10

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	c. Recognize that each successive number name refers to a quantity that is one greater.	GK M1 Topic G: *One More* with Numbers 0–10 GK M3 Lesson 23: Reason to identify and make a set that has 1 more. GK M4 Lesson 37: Add or subtract 0 to get the same number and relate to word problems wherein the same quantity that joins a set, separates. GK M4 Lesson 38: Add 1 to numbers 1–9 to see the pattern of *the next number* using 5-group drawings and equations. GK M5 Topic A: Count 10 Ones and Some Ones GK M5 Topic C: Decompose Numbers 11–20, and Count to Answer "How Many?" Questions in Varied Configurations
	K.CC.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, a circle, or as many as 10 things in a scattered configuration. Given a number from 1–20, count out that many objects.	GK M1: Numbers to 10 GK M5: Numbers 10–20 and Counting to 100
	Cluster: Compare numbers.	
	K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.	GK M3: Comparison of Length, Weight, Capacity, and Numbers to 10

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	K.CC.C.7 Compare two given numbers up to 10, when written as numerals, using the terms *greater than*, *less than*, or *equal to*.	GK M3 Topic F: Comparison of Sets Within 10 GK M3 Topic G: Comparison of Numerals
Operations and Algebraic Thinking	**Cluster: Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**	
	K.OA.A.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations.	GK M1 Lesson 28: Act out *result unknown* story problems without equations. GK M4: Number Pairs, Addition and Subtraction to 10
	K.OA.A.2 Add and subtract within 10 to solve contextual problems using objects or drawings to represent the problem.	GK M4: Number Pairs, Addition and Subtraction to 10

Domain	Standards for Mathematical Content		Aligned Components of *Eureka Math*
	K.OA.A.3 Decompose numbers less than or equal to 10 into addend pairs in more than one way (e.g., 5 = 2 + 3 and 5 = 4 + 1) by using objects or drawings. Record each decomposition using a drawing or writing an equation.		GK M1 Topic C: Numbers to 5 in Different Configurations, Math Drawings, and Expressions GK M1 Lesson 14: Write numerals 1–3. Represent decompositions with materials, drawings, and equations, 3 = 2 + 1 and 3 = 1 + 2. GK M1 Lesson 16: Write numerals 1–5 in order. Answer and make drawings of decompositions with totals of 4 and 5 without equations. GK M3 Lesson 7: Compare objects using *the same as*. GK M4: Number Pairs, Addition and Subtraction to 10
	K.OA.A.4 Find the number that makes 10, when added to any given number, from 1 to 9 using objects or drawings. Record the answer using a drawing or writing an equation.		GK M4 Lesson 39: Find the number that makes 10 for numbers 1–9, and record each with a 5-group drawing. GK M4 Lesson 40: Find the number that makes 10 for numbers 1–9, and record each with an addition equation. GK M5 Lesson 10: Build a Rekenrek to 20.
	K.OA.A.5 Fluently add and subtract within 10 using mental strategies.		GK M4: Number Pairs, Addition and Subtraction to 10

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Number and Operations in Base Ten	**Cluster: Work with numbers 11–19 to gain foundations for place value.**	
	K.NBT.A.1 Compose and decompose numbers from 11 to 19 into ten ones and some more ones by using objects or drawings. Record the composition or decomposition using a drawing or by writing an equation.	GK M5: Numbers 10–20 and Counting to 100
Measurement and Data	**Cluster: Describe and compare measurable attributes.**	
	K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	GK M3: Comparison of Length, Weight, Capacity, and Numbers to 10
	K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has more of/less of the attribute, and describe the difference.	GK M3: Comparison of Length, Weight, Capacity, and Numbers to 10
	Cluster: Work with money.	
	K.MD.B.3 Identify the penny, nickel, dime, and quarter and recognize the value of each.	G1 M4 Lesson 6: Use dimes and pennies as representations of tens and ones. G1 M6 Topic E: Coins and Their Values

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Classify objects and count the number of objects in each category.	
	K.MD.C.4 Sort a collection of objects into a given category, with 10 or less in each category. Compare the categories by group size.	GK M1 Topic A: Attributes of Two Related Objects GK M1 Topic B: Classify to Make Categories and Count GK M2 Topic C: Two-Dimensional and Three-Dimensional Shapes
Geometry	**Cluster: Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**	
	K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to*.	GK M2 Lesson 5: Describe and communicate positions of all flat shapes using the words *above, below, beside, in front of, next to,* and *behind*. GK M2 Lesson 8: Describe and communicate positions of all solid shapes using the words *above, below, beside, in front of, next to,* and *behind*.
	K.G.2 Correctly name shapes regardless of their orientations or overall size.	GK M2: Two-Dimensional and Three-Dimensional Shapes
	K.G.A.3 Identify shapes as two-dimensional or three-dimensional.	GK M2 Topic C: Two-Dimensional and Three-Dimensional Shapes

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Analyze, compare, create, and compose shapes.	
	K.G.B.4 Describe similarities and differences between two- and three-dimensional shapes, in different sizes and orientations.	GK M2: Two-Dimensional and Three-Dimensional Shapes GK M6: Analyzing, Comparing, and Composing Shapes
	K.G.B.5 Model shapes in the world by building and drawing shapes.	GK M6: Analyzing, Comparing, and Composing Shapes
	K.G.B.6 Compose larger shapes using simple shapes and identify smaller shapes within a larger shape.	GK M6: Analyzing, Comparing, and Composing Shapes