

## Beast Academy Scope and Sequence for Grade 5 (books 5A through 5D).

The content covered in Beast Academy Grade 5 is loosely based on the standards created by the Common Core State Standards Initiative.

For more information on the Common Core State Standards, visit [www.corestandards.org](http://www.corestandards.org).

Beast Academy Grade 5 Chapters 1-12:

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|----------------------------|-------------------|
| 1. 3D Solids               | 7. Sequences      |
| 2. Integers                | 8. Ratios & Rates |
| 3. Expressions & Equations | 9. Decimals       |
| 4. Statistics              | 10. Percents      |
| 5. Factors & Multiples     | 11. Square Roots  |
| 6. Fractions               | 12. Exponents     |

Grade 5 Common Core Standards	5A			5B			5C			5D		
	1	2	3	4	5	6	7	8	9	10	11	12
<b>Operations &amp; Algebraic Thinking</b>												
5.OA.A.1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Parentheses are introduced in Grade 2. We do not use brackets or braces in Beast Academy.											
5.OA.A.2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$ . Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$ , without having to calculate the indicated sum or product.	Included in Beast Academy 3B Chapter 6.											
5.OA.B.3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.	We introduce patterns in 3C Chapter 7, and examine more complex arithmetic sequences in 5C Chapter 7. We do not graph on the coordinate plane in Beast Academy.											
<b>Number &amp; Operations in Base Ten</b>												
5.NBT.A.1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	Included in Beast Academy 4A Chapter 3 and in Beast Academy 4D Chapter 11.											
5.NBT.A.2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.									✓			
5.NBT.A.3. Read, write, and compare decimals to thousandths.	Included in Beast Academy 4D Chapter 11.											

	5A			5B			5C			5D		
Grade 5 Common Core Standards	1	2	3	4	5	6	7	8	9	10	11	12
5.NBT.A.4. Use place value understanding to round decimals to any place.	Included in Beast Academy 4D Chapter 11.											
5.NBT.B.5. Fluently multiply multi-digit whole numbers using the standard algorithm.	Included in Beast Academy 4A Chapter 2.											
5.NBT.B.6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Included in Beast Academy 4B Chapter 5.											
5.NBT.B.7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.									✓			
Number & Operations—Fractions	1	2	3	4	5	6	7	8	9	10	11	12
5.NF.A.1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$ . (In general, $a/b + c/d = (ad + bc)/bd$ .)						✓						
5.NF.A.2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$ , by observing that $3/7 < 1/2$ .						✓						
5.NF.B.3. Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?	Included in Beast Academy 3D Chapter 10.											

Grade 5 Common Core Standards	5A			5B			5C			5D		
	1	2	3	4	5	6	7	8	9	10	11	12
5.NF.B.4.A. Interpret the product $(a/b) \times q$ as a parts of a partition of $q$ into $b$ equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$ . For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$ , and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$ . (In general, $(a/b) \times (c/d) = (ac)/(bd)$ ).	Included in Beast Academy 4D Chapter 10.											
5.NF.B.4.B. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	Included in Beast Academy 4D Chapter 10.											
5.NF.B.5.A. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	Included in Beast Academy 4D Chapter 10.											
5.NF.B.5.B. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying $a/b$ by 1.	Included in Beast Academy 4D Chapter 10.											
5.NF.B.6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.						✓						
5.NF.B.7.A. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$ .						✓						
5.NF.B.7.B. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$ .						✓						
5.NF.B.7.C. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$ -cup servings are in 2 cups of raisins?						✓						

	5A			5B			5C			5D		
Grade 5 Common Core Standards	1	2	3	4	5	6	7	8	9	10	11	12
Measurement & Data	1	2	3	4	5	6	7	8	9	10	11	12
5.MD.A.1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.								✓				
5.MD.B.2. Make a line plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{8}$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.	Not Included											
5.MD.C.3.A. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.	✓											
5.MD.C.3.B. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	✓											
5.MD.C.4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	✓											
5.MD.C.5.A. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.	✓											
5.MD.C.5.B. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.	✓											
5.MD.C.5.C. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	✓											
Geometry	1	2	3	4	5	6	7	8	9	10	11	12
5.G.A.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.	Included in Beast Academy 3A Chapter 1											

Grade 5 Common Core Standards	5A			5B			5C			5D		
	1	2	3	4	5	6	7	8	9	10	11	12
5.G.A.2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	Not Included											
5.G.B.3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.	Included in Beast Academy 3A Chapter 1											
5.G.B.4. Classify two-dimensional figures in a hierarchy based on properties.	Included in Beast Academy 3A Chapter 1											

The following Grade 6-8 goals of the Common Core State Standards are included in the content of Beast Academy Grade 5.

Grade 6-8 Goals	5A			5B			5C			5D		
	1	2	3	4	5	6	7	8	9	10	11	12
6.RP.A.1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”								✓				
6.RP.A.2. Understand the concept of a unit rate $a/b$ associated with a ratio $a:b$ with $b \neq 0$ , and use rate language in the context of a ratio relationship. For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”								✓				
6.RP.A.3.A . Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.								✓				
6.RP.A.3.B. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?								✓				
6.RP.A.3.C. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole, given a part and the percent.										✓		











