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.

Beast Academy Grade 5 Chapters 1-12:

1. 3D Solids

7. Sequences

2. Integers

- 8. Ratios & Rates9. Decimals
- Expressions & Equations
 Statistics
- 10. Percents
- 5. Factors & Multiples
- 6. Fractions

Square Roots
 Exponents

		5 A		5I		5B		5B		5B		5 C			5D	
Grade 5 Common Core Standards	1	2	3	4	5	6	7	8	9	10	11	12				
Operations & Algebraic Thinking																
5.OA.A.1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Parentheses are introduced in Grade 2. V not use brackets or braces in Beast Acad															
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.	³ Included in Beast Academy 3B Chapte															
5.OA.B.3. Generate two numerical patterns using two given rules. Identify apparent relationships between correspond- ing 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 infor- mally why this is so.	examine more complex arithmetic sequences in 5C Chapter 7. We do not graph on the															
Number & Operations in Base Ten	1	2	3	4	5	6	7	8	9	10	11	12				
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.					Beas ist A			•								
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 thou- sandths.	Included in Beast Academy 4D Chapter										er 11					

		5A			5B			5 C			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 1												
5.NBT.B.5. Fluently multiply multi-digit whole numbers us-	⁵⁻ Included in Beast Academy 4A Chapter 2.												
ing the standard algorithm. 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.	g S, Included in Beast Academy 4B Chapter												
5.NBT.B.7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strate- gies 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 denomina- tors (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 denomi- nators. 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 sub- traction 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 bench- mark 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 numera- tor 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, not- ing 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?	al Included in Beast Academy 3D Chapter 10.												

		5A	A 5B					5C			5D		
Grade 5 Common Core Standards	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, $(a/b) \times (c/d) = (ac)/(bd)$.]	Inclu	ded	in B	east 2	Acad	dem	ıy 4D) Ch	apte	r 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 repre- sent fraction products as rectangular areas.]	Inclu	ded	in B	east 1	Acad	dem	ıy 4E) Ch	apte	r 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.]	Inclu	.ded	in B	east 1	Acad	dem	iy 4D) Ch	apte	r 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.	rs 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 1 2 3 4 5 6 7 8 9										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 measure- ment 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 measure- ments in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving infor- mation 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.	n Not Included nt												
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 multi- plying 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 rectan- gular 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.	., g., e es, Included in Beast Academy 3A Chapter 1												

	5A 5B 5C											
Grade 5 Common Core Standards	1 2 3 4 5 6 7 8									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.												
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.		Incl	udec	l in i	Beas	st Ac	adeı	ny 3	A C	hapt	er 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.

	5A			5B			5C				5D	
Grade 6-8 Goals	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 quan- tities. 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 quanti- ties 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 involv- ing 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.										~		

		5A			5B			5C			5D	
Grade 6-8 Goals	1	2	3	4	5	6	7	8	9	10	11	12
6.RP.A.3.D. Use ratio reasoning to convert measurement												
units; manipulate and transform units appropriately when								✓				
multiplying or dividing quantities.												
6.NS.A.1. Interpret and compute quotients of fractions, and												
solve word problems involving division of fractions by frac-												
tions, e.g., by using visual fraction models and equations to												
represent the problem. For example, create a story context												
for $(2/3) \div (3/4)$ and use a visual fraction model to show the												
quotient; use the relationship between multiplication and						√						
division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$												
is 2/3. (In general, $(a/b) \div (c/d) = ad/bc$.) How much choco-												
late will each person get if 3 people share 1/2 lb of chocolate												
equally? How many 3/4-cup servings are in 2/3 of a cup of												
yogurt? How wide is a rectangular strip of land with length												
3/4 mi and area 1/2 square mi?.								ļ				
6.NS.B.2. Fluently divide multi-digit numbers using the									\checkmark			
standard algorithm.												
6.NS.B.4. Find the greatest common factor of two whole												
numbers less than or equal to 100 and the least common												
multiple of two whole numbers less than or equal to 12.												
Use the distributive property to express a sum of two whole					✓							
numbers 1-100 with a common factor as a multiple of a sum												
of two whole numbers with no common factor. For example,												
express 36 + 8 as 4 (9 + 2)												
6.EE.A.1. Write and evaluate numerical expressions involv-												\checkmark
ing whole-number exponents.								<u> </u>				
6.EE.A.2. Write, read, and evaluate expressions in which let-			\checkmark									
ters stand for numbers.								<u> </u>				
6.EE.A.4. Identify when two expressions are equivalent (i.e.,												
when the two expressions name the same number regardless												
of which value is substituted into them). For example, the ex-			 ✓ 									
pressions $y + y + y$ and $3y$ are equivalent because they name												
the same number regardless of which number y stands for												
6.EE.B.5. Understand solving an equation or inequality												
as a process of answering a question: which values from a												
specified set, if any, make the equation or inequality true?			✓									
Use substitution to determine whether a given number in a												
specified set makes an equation or inequality true.												
6.EE.B.6. Use variables to represent numbers and write ex-												
pressions when solving a real-world or mathematical prob-												
lem; understand that a variable can represent an unknown			✓									
number, or, depending on the purpose at hand, any number												
in a specified set.												

		5A			5B			5 C			5D	
Grade 6-8 Goals	1	2	3	4	5	6	7	8	9	10	11	12
6.G.A.2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l w h$ and $V = b h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	~											
6.G.A.4 Represent three-dimensional figures 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.	~											
6.SP.A.2. 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.				~								
6.SP.A.3. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.				~								
7.RP.A.2. Recognize and represent proportional relation- ships between quantities.								~		~		
7.RP.A.3. Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.								~		√		
7.NS.A.2.A. Understand that multiplication is extended from fractions to rational numbers by requiring that opera- tions continue to satisfy the properties of operations, par- ticularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real- world contexts.		~										
7.NS.A.2.B. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.		~										
7.NS.A.2.C. Apply properties of operations as strategies to multiply and divide rational numbers.		~										
7.NS.A.2.D. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.									~			
7.NS.A.3. Solve real-world and mathematical problems in- volving the four operations with rational numbers.		~										

		5A			5B			5C			5D	
Grade 6-8 Goals	1	2	3	4	5	6	7	8	9	10	11	12
7.EE.A.1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.			~									
7.EE.A.2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a $+ 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."			~							~		
7.EE.B.3. Solve multi-step real-life and mathematical prob- lems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appro- priate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.		~	✓			~			✓	✓		
7.EE.B.4.A. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?			V									
7.G.B.6. Solve real-world and mathematical problems in- volving area, volume and surface area of two- and three- dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	~											
8.NS.A.2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., $\pi 2$). For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.											~	
8.EE.A.1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.												✓

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	2	3	4	5	6	7	8	9	10	11	12
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