



Guide to Mathematics Course of Study at Telra Institute

This gives the framework for the curriculum, standards, and progression of mathematics at Telra Institute. In this guide, you will find minimum standards for performance for each grade level. Know that students may follow alternate pathways and access higher level courses than the courses listed as the minimum for the grade. Students who demonstrate a need for instruction below the minimum level for their numerical grade level will be referred for intervention and may be retained.

Mathematics at Telra

Dimensions

At the most foundational level, students begin mathematics instruction using Singapore Math through the Dimensions curriculum.

Singapore math focuses on mastery of concepts through the use of the concrete, pictorial, abstract (CPA) progression. Students learn to think mathematically and apply the concepts they are learning in new ways. This serves as the basis for our students to become successful problem solvers as they progress through their time at Telra.

Beast Academy

Beast Academy builds on the foundation that began in the Dimensions curriculum by continuing to provide math challenges to students that require application of concepts rather than merely memorization. Beast Academy is presented in a comic book format with monster characters that students follow from Level 1 through Level 5. Students join the monsters on a journey to become critical thinkers and apply higher-order reasoning skills. By tackling challenging problems, students gain resilience, creativity and perseverance that can be applied to all areas, not just mathematics. Beast Academy is puzzle-based and provides opportunities for students to think differently to solve problems.

Art of Problem Solving

After Beast Academy, students dive into the introductory series of Art of Problem Solving's (AoPS) middle and high school curriculum. The curriculum is designed for high-performing math students to present broader and deeper explorations of challenging mathematics than typical math curriculum. Like Beast Academy, AoPS focuses on problem-solving skills, critical thinking, and application of mathematical concepts.

Mathematics Course of Study 2024-2025

Courses must be completed no later than the end of the grade level listed in the right-hand column of the table below with a grade of 60% or higher to be considered passing. Students who demonstrate a need for instruction below the minimum level for their numerical grade level will be referred for intervention and may be retained.

Course	Completed No Later Than...
Telra Math 0 <ul style="list-style-type: none"> All Kindergarten and Select 1st Grade Standards 	End of Kindergarten
Telra Math 0.5 <ul style="list-style-type: none"> Select Kindergarten, 1st, and 2nd Grade Standards 	
Telra Math 1 <ul style="list-style-type: none"> All 1st and Select 2nd Grade Standards 	End of 1 st Grade
Telra Math 1.5 <ul style="list-style-type: none"> Select 1st, 2nd, and 5th Grade Standards (5.OA.1) 	
Telra Math 2 <ul style="list-style-type: none"> Select 2nd-5th Grade Standards 	End of 2 nd Grade
Telra Math 2.5 <ul style="list-style-type: none"> Select 2nd-5th Grade Standards 	
Telra Math 3 <ul style="list-style-type: none"> Select 2nd-6th Grade Standards 	End of 3 rd Grade
Telra Math 3.5 <ul style="list-style-type: none"> Select 3rd-8th Grade Standards 	End of 4 th Grade
Telra Math 4 <ul style="list-style-type: none"> Select 4th-8th Grade Standards 	End of 5 th Grade
Telra Math 4.5 <ul style="list-style-type: none"> Select 3rd-8th Grade Standards 	
Telra Math 5 <ul style="list-style-type: none"> Select 5th-8th Grade Standards 	End of 6 th Grade
Telra Math 6 <ul style="list-style-type: none"> Preparation for Math I 	End of 7 th Grade
Telra Math 7 <ul style="list-style-type: none"> Students take the Math I EOC at the end of this course. 	End of 8 th Grade
Telra Math 8 <ul style="list-style-type: none"> Students have the opportunity to earn Math 2 credit through this course. 	End of 9 th Grade
Telra Math 9 <ul style="list-style-type: none"> Students have the opportunity to earn Math 3 credit through this course. 	End of 10 th Grade

Telra Math 0

Telra Math 0, using Dimensions KA-KB, provides students with foundational math concepts in the domains of Counting and Cardinality, Operations and Algebraic Thinking, Numbers and Operations in Base Ten, Measurement and Data, and Geometry. Students build their knowledge by moving from concrete representations to pictorial representations, ending with the abstract.

Chapter 1: Match, Sort, and Classify <ul style="list-style-type: none">• Students will classify, sort, and compare objects by size, texture, shape, size, and orientation.• Standards: K.G.1, K.MD.3
Chapter 2: Numbers to 5 <ul style="list-style-type: none">• Students will learn sequential counting to and from 5, one-to-one correspondence up to 5, and recognizing/writing of numerals 0-5.• Standards: K.CC.1, K.CC.3, K.CC.4
Chapter 3: Numbers to 10 <ul style="list-style-type: none">• Students will understand that our numeration system is a base ten system by using ten-frame cards. Students will also write numerals 0-9 and notice that while 10 has two digits, it represents one number.• Standards: K.CC.1, K.CC.3, K.CC.4, K.G.1
Chapter 4: Shapes and Solids <ul style="list-style-type: none">• Students will investigate two-dimensional and three-dimensional shapes and identify these shapes in the world. Students will focus on attributes of shapes such as boundaries, sides, corners, size, orientation, and position.• Standards: K.G.1, K.G.2, K.G.3, K.G.4, K.G.5, K.G.6, K.MD.1, K.MD.2
Chapter 5: Compare Height, Length, Width, and Capacity <ul style="list-style-type: none">• Students will focus on direct and indirect measurement of objects while comparing length, weight, and capacity.• Standards: K.MD.1, K.MD.2
Chapter 6: Comparing Numbers Withing 10 <ul style="list-style-type: none">• Students will mathematically compare by

<p>quantity, moving from comparing numbers of objects to comparing values of numerals.</p> <ul style="list-style-type: none">• Standards: K.CC.6, K.CC.7
Chapter 7: Numbers to 20 <ul style="list-style-type: none">• Students will expand their understanding of the base 10 system by focusing on numbers 1-20 with a special emphasis on understanding ten numbers as 10 and some more.• Standards: K.CC.1, K.CC.2, K.CC.3, K.CC.5, K.NBT.1
Chapter 8: Number Bonds <ul style="list-style-type: none">• Students will learn to use number bonds to 10 as pictorial representations of a whole and its parts.• Standards: K.OA.1, K.OA.3, K.OA.4, K.OA.5
Chapter 9: Addition <ul style="list-style-type: none">• Students will apply their knowledge of number bonds to addition equations up to a sum of 10.• Standards: K.OA.1, K.OA.2, K.OA.5
Chapter 10: Subtraction <ul style="list-style-type: none">• Students will apply their knowledge of number bonds to subtraction equations within 10 using strategies such as counting back.• Standards: K.OA.1, K.OA.2, K.OA.3, K.OA.5
Chapter 11: Addition and Subtraction <ul style="list-style-type: none">• Students will focus on the relationship between addition and subtraction and represent this relationship as equations.• Standards: K.OA.1, K.OA.2, K.OA.5
Chapter 12: Numbers to 100 <ul style="list-style-type: none">• Students will count by 1s, 5s, and 10s to 100 and will interpret numbers to 100 as tens and ones.• Standards: K.CC.1
Chapter 13: Time <ul style="list-style-type: none">• Students will tell time to the hour on both analog and digital clocks and understand the concept of time passing.• Standards: 1.MD.3
Chapter 14: Money <ul style="list-style-type: none">• Students will learn the name and value of pennies, nickels, and dimes and practice skip counting by fives and tens using coins.• Standards: 1.MD.5

Telra Math 0.5

Dimensions KB provides students with foundational math concepts in the domains of Counting and Cardinality, Operations and Algebraic Thinking, Numbers and Operations in Base Ten, Measurement and Data, and Geometry. Beast 1A-1B builds on the skills from Dimensions KB while pushing students to begin thinking more critically and to approach problems in novel ways. Students may place into this course.

Chapter 7: Numbers to 20

- Students will expand their understanding of the base 10 system by focusing on numbers 1-20 with a special emphasis on understanding ten numbers as 10 and some more.
- Standards: K.CC.1, K.CC.2, K.CC.3, K.CC.5, K.NBT.1

Chapter 8: Number Bonds

- Students will learn to use number bonds to 10 as pictorial representations of a whole and its parts.
- Standards: K.OA.1, K.OA.3, K.OA.4, K.OA.5

Chapter 9: Addition

- Students will apply their knowledge of number bonds to addition equations up to a sum of 10.
- Standards: K.OA.1, K.OA.2, K.OA.5

Chapter 10: Subtraction

- Students will apply their knowledge of number bonds to subtraction equations within 10 using strategies such as counting back.
- Standards: K.OA.1, K.OA.2, K.OA.3, K.OA.5

Chapter 11: Addition and Subtraction

- Students will focus on the relationship between addition and subtraction and represent this relationship as equations.
- Standards: K.OA.1, K.OA.2, K.OA.5

Chapter 12: Numbers to 100

- Students will count by 1s, 5s, and 10s to 100 and will interpret numbers to 100 as tens and ones.
- Standards: K.CC.1

Chapter 13: Time

- Students will tell time to the hour on both analog and digital clocks and understand the concept of time passing.
- Standards: 1.MD.3

Chapter 14: Money

- Students will learn the name and value of pennies, nickels, and dimes and practice skip counting by fives and tens using coins.
- Standards: 1.MD.5

Beast 1 Chapter 1: Counting

- Students work on one-to-one correspondence, gain practice recognizing small amounts, and gain fluency with numbers to 100. Students spend time focusing on the number ten and its relationship to place value.
- Standards: K.CC.1, K.CC.3, K.CC.4, K.CC.5, 1.OA.1, 1.OA.6, 1.NBT.1, 1.NBT.2

Beast 1 Chapter 2: Shapes

- Students will learn the names and properties of basic shapes and practice drawing them. Students will learn to recognize rotations/reflections of shapes, as well as to split and combine shapes.
- Standards: K.G.5, 1.G.1, 1.G.2, 2.G.1

Beast 1 Chapter 3: Comparing

- Students will compare and order amounts using the following symbols: $<$, $>$, and $=$. Students will also compare lengths and distances without measuring.
- Standards: K.CC.6, K.MD.2, 1.OA.1, 1.NBT.2, 1.NBT.3, 1.MD.2, 1.MD.4

Beast 1 Chapter 4: Addition

- Students will work with addition equations to read and interpret math symbols. Students will use the commutative property, compensation, and adding/making ten when completing addition equations.
- Standards: 1.OA.1, 1.OA.2, 1.OA.3, 1.OA.5, 1.OA.6, 1.OA.7, 1.OA.8, 1.NBT.2, 1.NBT.4, 1.NBT.5

Beast 1 Chapter 5: Subtraction

- Students will learn that subtraction means both taking one amount away from another and finding the distance between two amounts.
- Standards: 1.OA.1, 1.OA.3, 1.OA.4, 1.OA.5, 1.OA.6, 1.OA.7, 1.OA.8, 1.NBT.2, 1.NBT.4, 1.NBT.5, 2.NBT.5

Beast 1 Chapter 6: Categories

- Students will explore categories of numbers, such as odds and evens, perfect squares, and prime numbers. Students will be introduced to Venn Diagrams.
- Standards: 1.G.1, 1.G.2, 1.MD.4, 2.G.1, 2.G.2

Telra Math 1

Beast Academy 1 is designed for students ages 6-8 and covers standards from kindergarten through 2nd grade. This curriculum takes students from the basics of Dimensions K and allows them to apply their knowledge to novel problem types. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten, Measurement and Data, and Geometry.

Beast 1 Chapter 1: Counting

- Students will work on one-to-one correspondence, gain practice recognizing small amounts, and gain fluency with numbers to 100. Students spend time focusing on the number ten and its relationship to place value.
- Standards: K.CC.1, K.CC.3, K.CC.4, K.CC.5, 1.OA.1, 1.OA.6, 1.NBT.1, 1.NBT.2

Beast 1 Chapter 2: Shapes

- Students will learn the names and properties of basic shapes and practice drawing them. Students will learn to recognize rotations/reflections of shapes, as well as to split and combine shapes.
- Standards: K.G.5, 1.G.1, 1.G.2, 2.G.1

Beast 1 Chapter 3: Comparing

- Students will compare and order amounts using the following symbols: $<$, $>$, and $=$. Students will also compare lengths and distances without measuring.
- Standards: K.CC.6, K.MD.2, 1.OA.1, 1.NBT.2, 1.NBT.3, 1.MD.2, 1.MD.4

Beast 1 Chapter 4: Addition

- Students will work with addition equations to read and interpret math symbols. Students will use the commutative property, compensation, and adding/making ten when completing addition equations.
- Standards: 1.OA.1, 1.OA.2, 1.OA.3, 1.OA.5, 1.OA.6, 1.OA.7, 1.OA.8, 1.NBT.2, 1.NBT.4, 1.NBT.5

Beast 1 Chapter 5: Subtraction

- Students will learn that subtraction means both taking one amount away from another and finding the distance between two amounts.
- Standards: 1.OA.1, 1.OA.3, 1.OA.4, 1.OA.5, 1.OA.6, 1.OA.7, 1.OA.8, 1.NBT.2, 1.NBT.4, 1.NBT.5, 2.NBT.5

Beast 1 Chapter 6: Categories

- Students will explore categories of numbers, such as odds and evens, perfect squares, and prime numbers. Students will be introduced to Venn Diagrams.
- Standards: 1.G.1, 1.G.2, 1.MD.4, 2.G.1, 2.G.2

Beast 1 Chapter 7: Addition & Subtraction

- Students will use number lines to solve addition and subtraction problems. Students will apply their understanding of place value to addition and subtraction.
- Standards: 1.OA.3, 1.OA.4, 1.OA.5, 1.OA.6, 1.OA.8, 1.NBT.2, 1.NBT.4, 1.NBT.5, 1.NBT.6, 1.NBT.8

Beast 1 Chapter 8: Comparing

- Students will apply the comparison symbols by ordering number sets from least to greatest. Students will compare sums and differences without adding or subtracting. This chapter serves as an introduction to algebraic thinking.
- Standards: 1.OA.1, 1.OA.3, 1.OA.6, 1.OA.7, 1.OA.8, 1.NBT.3, 1.NBT.4, 1.NBT.5, 1.NBT.6, 2.OA.1

Beast 1 Chapter 9:

- Students will work with shape patterns and begin skip-counting by the numbers 2-9. Students will also explore the Fibonacci sequence, perfect squares, and triangular numbers.
- Standards: 1.OA.1, 1.OA.6, 1.NBT.4, 2.NBT.2

Beast 1 Chapter 10: Big Numbers

- Students will add small amounts to three-digit numbers by counting up and using number lines. Students will use place value to add tens. Students will write numbers in expanded form.
- Standards: 1.OA.3, 1.OA.5, 1.NBT.1, 1.NBT.2, 1.NBT.5, 2.NBT.1, 2.NBT.2, 2.NBT.3, 2.NBT.7, 2.MD.6

Beast 1 Chapter 11: Measurement

- Students will compare and measure lengths using units. Students will measure time in minutes, hours, days, weeks, and months.
- Standards: 1.OA.1, 1.OA.5, 1.OA.6, 1.MD.1, 1.MD.2, 1.MD.3, 1.MD.4, 1.G.1, 2.MD.2

Beast 1 Chapter 12: Problem Solving

- Students will use words like left, right, top, bottom, and middle to follow directions. Students will use the four cardinal directions and consider sequential order.
- Standards: 1.OA.1, 1.OA.3, 1.OA.7, 1.OA.8

Tetra Math 1.5

Beast Academy 1 is designed for students ages 6-8 and covers standards from kindergarten through 2nd grade. Students in this course begin halfway through Beast 1 and complete half of Beast 2.

Beast Academy 2 is designed for students ages 7-9. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten, Measurement and Data, and Geometry.

Beast 1 Chapter 7: Addition & Subtraction

- Students will use number lines to solve addition and subtraction problems. Students will apply their understanding of place value to addition and subtraction.
- Standards: 1.OA.3, 1.OA.4, 1.OA.5, 1.OA.6, 1.OA.8, 1.NBT.2, 1.NBT.4, 1.NBT.5, 1.NBT.6, 1.NBT.8

Beast 1 Chapter 8: Comparing

- Students will apply the comparison symbols by ordering number sets from least to greatest. Students will compare sums and differences without adding or subtracting. This chapter serves as an introduction to algebraic thinking.
- Standards: 1.OA.1, 1.OA.3, 1.OA.6, 1.OA.7, 1.OA.8, 1.NBT.3, 1.NBT.4, 1.NBT.5, 1.NBT.6, 2.OA.1

Beast 1 Chapter 9:

- Students will work with shape patterns and begin skip-counting by the numbers 2-9. Students will also explore the Fibonacci sequence, perfect squares, and triangular numbers.
- Standards: 1.OA.1, 1.OA.6, 1.NBT.4, 2.NBT.2

Beast 1 Chapter 10: Big Numbers

- Students will add small amounts to three-digit numbers by counting up and using number lines. Students will use place value to add tens. Students will write numbers in expanded form.
- Standards: 1.OA.3, 1.OA.5, 1.NBT.1, 1.NBT.2, 1.NBT.5, 2.NBT.1, 2.NBT.2, 2.NBT.3, 2.NBT.7, 2.MD.6

Beast 1 Chapter 11: Measurement

- Students will compare and measure lengths using units. Students will measure time in minutes, hours, days, weeks, and months.
- Standards: 1.OA.1, 1.OA.5, 1.OA.6, 1.MD.1, 1.MD.2, 1.MD.3, 1.MD.4, 1.G.1, 2.MD.2

Beast 1 Chapter 12: Problem Solving

- Students will use words like left, right, top, bottom, and middle to follow directions. Students will use the four cardinal directions and consider sequential order.
- Standards: 1.OA.1, 1.OA.3, 1.OA.7, 1.OA.8

Beast 2 Chapter 1: Place Value

- Students will use pirate numbers to understand breaking and regrouping strategies in the base 10 system.
- Standards: 2.OA.1, 2.NBT.1, 2.NBT.3, 2.NBT.5, 2.NBT.8

Beast 2 Chapter 2: Comparing

- Students will deepen their understanding of place value by using number lines to find distances between two points.
- Standards: 2.NBT.4, 2.NBT.5, 2.NBT.6, 2.MD.5, 2.MD.6

Beast 2 Chapter 3: Addition

- Students will begin to work with 2- and 3-digit addition equations through their understanding of place value and mental computation strategies.
- Standards: 2.NBT.5, 2.NBT.7

Beast 2 Chapter 4: Subtraction

- Students will focus on the relationship between addition and subtraction and employ models of subtraction that center around place value and mental computation strategies.
- Standards: 2.OA.1, 2.NBT.5, 2.NBT.7

Beast 2 Chapter 5: Expressions

- Students will learn to evaluate expressions through an introduction to parentheses and variables. Students will simplify expressions and solve basic equations.
- Standards: 2.OA.1, 2.NBT.5, 2.NBT.7, 5.OA.1

Beast 2 Chapter 6: Problem Solving

- Students will apply their knowledge of problem solving to unfamiliar problems. This chapter can be frustrating at first, so students focus on the idea that failure is a vital part of learning. Students will play, fiddle, experiment, fail and repeat this process to become resourceful, resilient problem solvers.
- Standards: Standards for Mathematical Practice

Telra Math 2

Beast Academy 2 is designed for students ages 7-9. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten, Measurement and Data, and Geometry. Standards covered in this course range from 2nd-4th Grade standards.

<p>Beast 2 Chapter 1: Place Value</p> <ul style="list-style-type: none"> Students will use pirate numbers to understand breaking and regrouping strategies in the base 10 system. Standards: 2.OA.1, 2.NBT.1, 2.NBT.3, 2.NBT.5, 2.NBT.8 	<p>problem solvers.</p> <ul style="list-style-type: none"> Standards: Standards for Mathematical Practice
<p>Beast 2 Chapter 2: Comparing</p> <ul style="list-style-type: none"> Students will deepen their understanding of place value by using number lines to find distances between two points. Standards: 2.NBT.4, 2.NBT.5, 2.NBT.6, 2.MD.5, 2.MD.6 	<p>Beast 2 Chapter 7: Measurement</p> <ul style="list-style-type: none"> Students will measure lengths in standard units, such as inches and centimeters. Students will understand the importance of including units in their answers. Standards: 2.MD.1, 2.MD.2, 2.MD.3, 2.MD.4
<p>Beast 2 Chapter 3: Addition</p> <ul style="list-style-type: none"> Students will begin to work with 2- and 3-digit addition equations through their understanding of place value and mental computation strategies. Standards: 2.NBT.5, 2.NBT.7 	<p>Beast 2 Chapter 8: Strategies + & -</p> <ul style="list-style-type: none"> Students will read and understand math expression so they can rearrange, rewrite, and simplify them efficiently. Standards: 2.OA.1, 2.OA.2, 2.NBT.5, 2.NBT.6, 2.NBT.9, 3.NBT.2
<p>Beast 2 Chapter 4: Subtraction</p> <ul style="list-style-type: none"> Students will focus on the relationship between addition and subtraction and employ models of subtraction that center around place value and mental computation strategies. Standards: 2.OA.1, 2.NBT.5, 2.NBT.7 	<p>Beast 2 Chapter 9: Odds and Evens</p> <ul style="list-style-type: none"> Students will apply the basic properties of even and odd numbers to find clever ways to approach different problem types. Standards: 2.OA.3, 3.OA.9
<p>Beast 2 Chapter 5: Expressions</p> <ul style="list-style-type: none"> Students will learn to evaluate expressions through an introduction to parentheses and variables. Students will simplify expressions and solve basic equations. Standards: 2.OA.1, 2.NBT.5, 2.NBT.7, 5.OA.1 	<p>Beast 2 Chapter 10: Big Numbers</p> <ul style="list-style-type: none"> Students will increase their fluency with operations as they apply their skills with adding and subtracting 3-digit numbers to numbers greater than 999. Standards: 2.NBT.1, 2.NBT.7, 4.NBT.1, 4.NBT.2, 4.NBT.4
<p>Beast 2 Chapter 6: Problem Solving</p> <ul style="list-style-type: none"> Students will apply their knowledge of problem solving to unfamiliar problems. This chapter can be frustrating at first, so students focus on the idea that failure is a vital part of learning. Students will play, fiddle, experiment, fail and repeat this process to become resourceful, resilient 	<p>Beast 2 Chapter 11: Algorithms + & -</p> <ul style="list-style-type: none"> Students will apply their understanding of addition and subtraction to the use of algorithms. Students will determine when it is most helpful to use algorithms to solve problems and when mental computation and other strategies are more appropriate. Standards: 2.OA.1, 2.NBT.7, 2.NBT.9, 3.NBT.2, 4.NBT.4
	<p>Beast 2 Chapter 12: Problem Solving</p> <ul style="list-style-type: none"> Students will continue to practice the application of the problem solving skills in this chapter, focusing on organizing information, looking for patterns, solving simpler problems, and creating models. Standards: Standards for Mathematical Practice

Telra Math 2.5

Beast Academy 2 is designed for students ages 7-9. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten, Measurement and Data, and Geometry. Beast Academy 3 is designed for students ages 9-10 and covers the same skill domains as Beast Academy 2 at a higher level. All Beast Academy courses are focused on problem solving and puzzle-based learning. Standards covered in this course range from 2nd-5th Grade standards.

<p>Beast 2 Chapter 7: Measurement</p> <ul style="list-style-type: none"> Students will measure lengths in standard units, such as inches and centimeters. Students will understand the importance of including units in their answers. Standards: 2.MD.1, 2.MD.2, 2.MD.3, 2.MD.4
<p>Beast 2 Chapter 8: Strategies + & -</p> <ul style="list-style-type: none"> Students will read and understand math expression so they can rearrange, rewrite, and simplify them efficiently. Standards: 2.OA.1, 2.OA.22, NBT.5, 2.NBT.6, 2.NBT.9, 3.NBT.2
<p>Beast 2 Chapter 9: Odds and Evens</p> <ul style="list-style-type: none"> Students will apply the basic properties of even and odd numbers to find clever ways to approach different problem types. Standards: 2.OA.3, 3.OA.9
<p>Beast 2 Chapter 10: Big Numbers</p> <ul style="list-style-type: none"> Students will increase their fluency with operations as they apply their skills with adding and subtracting 3-digit numbers to numbers greater than 999. Standards: 2.NBT.1, 2.NBT.7, 4.NBT.1, 4.NBT.2, 4.NBT.4
<p>Beast 2 Chapter 11: Algorithms + & -</p> <ul style="list-style-type: none"> Students will apply their understanding of addition and subtraction to the use of algorithms. Students will determine when it is most helpful to use algorithms to solve problems and when mental computation and other strategies are more appropriate. Standards: 2.OA.1, 2.NBT.7, 2.NBT.9, 3.NBT.2, 4.NBT.4
<p>Beast 2 Chapter 12: Problem Solving</p> <ul style="list-style-type: none"> Students will continue to practice the application of the problem solving skills in

<p>this chapter, focusing on organizing information, looking for patterns, solving simpler problems, and creating models.</p> <ul style="list-style-type: none"> Standards: Standards for Mathematical Practice
<p>Beast 3 Chapter 1: Shapes</p> <ul style="list-style-type: none"> Students will classify shapes through rigorous mathematical definitions. Students will focus on angles, triangles, and quadrilaterals. Standards: 2.G.1, 3.G.1, 4.G.1, 4.G.2,
<p>Beast 3 Chapter 2: Skip Counting</p> <ul style="list-style-type: none"> Students will skip-count and notice patterns as a bridge to multiplication. Standards: 2.OA.4, 3.OA.9,
<p>Beast 3 Chapter 3: Perimeter and Area</p> <ul style="list-style-type: none"> Students will determine the perimeter and area of shapes. Students will determine perimeter by adding the sides of shapes and find unknown side lengths using what they do know. Students will focus on the idea that area is the number of square units inside of a shape. Standards: 2.OA.4, 2.G.2, 3.OA.9, 3.MD.5, 3.MD.6, 3.MD.7, 3.MD.8
<p>Beast 3 Chapter 4: Multiplication</p> <ul style="list-style-type: none"> Students will work to memorize their multiplication facts and build on their knowledge of skip counting. Students will use strategies such as reordering, multiplying by 4 and 8, multiplying by 5, and combining strategies to some problems. Standards: 2.OA.4, 3.OA.1, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.8, 3.OA.9, 3.NBT.3, 3.MD.7, 3.MD.8
<p>Beast 3 Chapter 5: Perfect Squares</p> <ul style="list-style-type: none"> Students will continue their study of multiplication through an exploration of perfect squares through area models. Standards: 3.OA.3, 3.OA.7, 3.MD.5, 3.MD.6, 3.MD.7, 3.MD.8, 4.MD.3,
<p>Beast 3 Chapter 6: The Distributive Property</p> <ul style="list-style-type: none"> Students will use the distributive property to split multiplication problems into parts and add the products of those parts to get the final product. Students will also focus on order of operations. Standards: 3.OA.4, 3.OA.5, 3.NBT.3, 3.MD.7, 5.OA.1, 5.OA.2

Telra Math 3

Beast Academy 3 is designed for students ages 9-10. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten and Fractions, Measurement and Data, and Geometry. All Beast Academy courses are focused on problem solving and puzzle-based learning. Standards covered in this course range from 2nd-6th Grade standards.

<p>Beast 3 Chapter 1: Shapes</p> <ul style="list-style-type: none"> Students will classify shapes through rigorous mathematical definitions. Students will focus on angles, triangles, and quadrilaterals. Standards: 2.G.1, 3.G.1, 4.G.1, 4.G.2, 	<p>to split multiplication problems into parts and add the products of those parts to get the final product. Students will also focus on order of operations.</p> <ul style="list-style-type: none"> Standards: 3.OA.4, 3.OA.5, 3.NBT.3, 3.MD.7, 5.OA.1, 5.OA.2
<p>Beast 3 Chapter 2: Skip-Counting</p> <ul style="list-style-type: none"> Students will skip count and notice patterns as a bridge to multiplication. Standards: 2.OA.4, 3.OA.9, 	<p>Beast 3 Chapter 7: Variables</p> <ul style="list-style-type: none"> Students will use traditional variables to explain and generalized relationships and patterns in equations using a variety of operations. Standards: 3.OA.4, 3.OA.8, 3.OA.9, 4.OA.5, 6.EE.6
<p>Beast 3 Chapter 3: Perimeter and Area</p> <ul style="list-style-type: none"> Students will determine the perimeter and area of shapes. Students will determine perimeter by adding the sides of shapes and find unknown side lengths using what they do know. Students will focus on the idea that area is the number of square units inside of a shape. Standards: 2.OA.4, 2.G.2, 3.OA.9, 3.MD.5, 3.MD.6, 3.MD.7, 3.MD.8 	<p>Beast 3 Chapter 8: Division</p> <ul style="list-style-type: none"> Students will use division to split numbers into equal parts. Students will focus on the relationship between multiplication and division and will continue to practice their multiplication facts. Standards: 3.OA.2, 3.OA.3, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.9, 4.NBT.6
<p>Beast 3 Chapter 4: Multiplication</p> <ul style="list-style-type: none"> Students will work to memorize their multiplication facts and build on their knowledge of skip counting. Students will use strategies such as reordering, multiplying by 4 and 8, multiplying by 5, and combining strategies to some problems. Standards: 2.OA.4, 3.OA.1, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.8, 3.OA.9, 3.NBT.3, 3.MD.7, 3.MD.8 	<p>Beast 3 Chapter 9: Measurement</p> <ul style="list-style-type: none"> Students will use units to explore meaningful measurements. Students will measure, estimate, and make basic computations and conversions. Standards: 2.MD.1, 2.MD.8, 3.MD.1, 3.MD.2, 3.MD.4, 3.MD.7, 3.MD.8, 4.MD.1,
<p>Beast 3 Chapter 5: Perfect Squares</p> <ul style="list-style-type: none"> Students will continue their study of multiplication through an exploration of perfect squares through area models. Standards: 3.OA.3, 3.OA.7, 3.MD.5, 3.MD.6, 3.MD.7, 3.MD.8, 4.MD.3, 	<p>Beast 3 Chapter 10: Fractions</p> <ul style="list-style-type: none"> Students will explore fractions on a number line to model fractions as numbers. Students will explore mixed numbers, parts of a whole, equivalent fractions, and comparing and ordering. Standards: 3.NF.1, 3.NF.2, 3.NF.3, 3.MD.4, 3.G.2, 3.G.3, 4.NF.2
<p>Beast 3 Chapter 6: The Distributive Property</p> <ul style="list-style-type: none"> Students will use the distributive property 	<p>Beast 3 Chapter 11: Estimation</p> <ul style="list-style-type: none"> Students will estimate to find inexact answers, make predictions, and to determine if amounts are reasonable. Standards: 3.NBT.1, 3.OA.9
	<p>Beast 3 Chapter 12: Area</p> <ul style="list-style-type: none"> Students will find the area of triangles and compound shapes. Students will learn the concepts behind traditional area formulas. Standards: 3.OA.3, 3.OA.8, 3.MD.5, 3.MD.6, 3.MD.7, 5.MD.1, 6.G.1

Telra Math 3.5

Beast Academy 3 is designed for students ages 9-10 and Beast Academy 4 is designed for students ages 10-12. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten and Fractions, Measurement and Data, and Geometry. All Beast Academy courses are focused on problem solving and puzzle-based learning. Standards covered in this course range from 2nd-6th Grade standards.

<p>Beast 3 Chapter 7: Variables</p> <ul style="list-style-type: none"> Students will use traditional variables to explain and generalized relationships and patterns in equations using a variety of operations. Standards: 3.OA.4, 3.OA.8, 3.OA.9, 4.OA.5, 6.EE.6
<p>Beast 3 Chapter 8: Division</p> <ul style="list-style-type: none"> Students will use division to split numbers into equal parts. Students will focus on the relationship between multiplication and division and will continue to practice their multiplication facts. Standards: 3.OA.2, 3.OA.3, 3.OA.5, 3.OA.6, 3.OA.7, 3.OA.9, 4.NBT.6
<p>Beast 3 Chapter 9: Measurement</p> <ul style="list-style-type: none"> Students will use units to explore meaningful measurements. Students will measure, estimate, and make basic computations and conversions. Standards: 2.MD.1, 2.MD.8, 3.MD.1, 3.MD.2, 3.MD.4, 3.MD.7, 3.MD.8, 4.MD.1,
<p>Beast 3 Chapter 10: Fractions</p> <ul style="list-style-type: none"> Students will explore fractions on a number line to model fractions as numbers. Students will explore mixed numbers, parts of a whole, equivalent fractions, and comparing and ordering. Standards: 3.NF.1, 3.NF.2, 3.NF.3, 3.MD.4, 3.G.2, 3.G.3, 4.NF.2
<p>Beast 3 Chapter 11: Estimation</p> <ul style="list-style-type: none"> Students will estimate to find inexact answers, make predictions, and to determine if amounts are reasonable. Standards: 3.NBT.1, 3.OA.9
<p>Beast 3 Chapter 12: Area</p> <ul style="list-style-type: none"> Students will find the area of triangles and

<p>compound shapes. Students will learn the concepts behind traditional area formulas.</p> <ul style="list-style-type: none"> Standards: 3.OA.3, 3.OA.8, 3.MD.5, 3.MD.6, 3.MD.7, 5.MD.1, 6.G.1
<p>Beast 4 Chapter 1: Shapes</p> <ul style="list-style-type: none"> Students will learn to measure angles, add new terms to their vocabularies, and be introduced to symmetry. Standards: 4.G.1, 4.G.2, 4.G.3, 4.MD.5, 4.MD.6, 4.MD.7, 8.G.5
<p>Beast 4 Chapter 2: Multiplication</p> <ul style="list-style-type: none"> Students will apply their knowledge of the distributive property to higher level multiplication with an understanding of the why behind the steps. Standards: 4.OA.1, 4.OA.2, 4.OA.3, 4.OA.5, 4.NBT.5, 4.MD.2, 4.MD.3, 5.NBT.5
<p>Beast 4 Chapter 3: Exponents</p> <ul style="list-style-type: none"> Students will explore exponents are repeated multiplication, focusing on the reasoning behind exponent rules and order of operations. Standards: 4.NBT.1, 6.EE.1, 8.EE.1
<p>Beast 4 Chapter 4: Counting</p> <ul style="list-style-type: none"> Students will explore probability and statistics through Venn diagrams, arrangements, and lists. Standards: Standards of Mathematical Practice
<p>Beast 4 Chapter 5: Division</p> <ul style="list-style-type: none"> Students will extend the division skills they learn in Beast 3 Chapter 8 to larger numbers, new strategies, and divisibility tests. Standards: 4.OA.1, 4.OA.3, 4.NBT.6, 4.MD.2
<p>Beast 4 Chapter 6: Logic</p> <ul style="list-style-type: none"> Students use logical thinking to determine what is definitely true and/or false. This chapter builds problem solving skills for students as they face types of problems with which they are unfamiliar. Standards: Standards of Mathematical Practice

Telra Math 4

Beast Academy 4 is designed for students ages 10-12. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten and Fractions, Measurement and Data, Geometry, and Exponents. All Beast Academy courses are focused on problem solving and puzzle-based learning. Standards covered in this course range from 4th-8th Grade standards.

<p>Beast 4 Chapter 1: Shapes</p> <ul style="list-style-type: none"> Students will learn to measure angles, add new terms to their vocabularies, and be introduced to symmetry. Standards: 4.G.1, 4.G.2, 4.G.3, 4.MD.5, 4.MD.6, 4.MD.7, 8.G.5
<p>Beast 4 Chapter 2: Multiplication</p> <ul style="list-style-type: none"> Students will apply their knowledge of the distributive property to higher level multiplication with an understanding of the why behind the steps. Standards: 4.OA.1, 4.OA.2, 4.OA.3, 4.OA.5, 4.NBT.5, 4.MD.2, 4.MD.3, 5.NBT.5
<p>Beast 4 Chapter 3: Exponents</p> <ul style="list-style-type: none"> Students will explore exponents are repeated multiplication, focusing on the reasoning behind exponent rules and order of operations. Standards: 4.NBT.1, 6.EE.1, 8.EE.1
<p>Beast 4 Chapter 4: Counting</p> <ul style="list-style-type: none"> Students will explore probability and statistics through Venn diagrams, arrangements, and lists. Standards: Standards of Mathematical Practice
<p>Beast 4 Chapter 5: Division</p> <ul style="list-style-type: none"> Students will extend the division skills they learn in Beast 3 Chapter 8 to larger numbers, new strategies, and divisibility tests. Standards: 4.OA.1, 4.OA.3, 4.NBT.6, 4.MD.2
<p>Beast 4 Chapter 6: Logic</p> <ul style="list-style-type: none"> Students use logical thinking to determine what is definitely true and/or false. This chapter builds problem solving skills for students as they face types of problems with which they are unfamiliar. Standards: Standards of Mathematical

Practice
<p>Beast 4 Chapter 7: Factors</p> <ul style="list-style-type: none"> Students will gain an understanding of factoring and prime factorization, along with divisibility rules for multi-digit numbers. Standards: 4.OA.3, 4.OA.4
<p>Beast 4 Chapter 8: Fractions (Addition and Subtraction)</p> <ul style="list-style-type: none"> Students will add and subtraction fractions and mixed numbers with the same denominator through the use of a number line. Standards: 4.NF.1, 4.NF.2, 4.NF.3, 4.MD.2
<p>Beast 4 Chapter 9: Integers</p> <ul style="list-style-type: none"> Students will perform addition and subtraction operations using positive and negative integers with an understanding that numbers that are further left on the number line are less than numbers to the right. Standards: 6.NS.6, 6.NS.7, 7.NS. 1
<p>Beast 4 Chapter 10: Fractions (Multiplication and Division)</p> <ul style="list-style-type: none"> Students will multiply whole numbers by fractions and divide whole numbers by unit fractions while gaining an understanding of what it means to multiply for divide a fraction. Standards: 4.OA.2, 4.OA.3, 4.NF.1, 4.NF.2, 4.NF.4, 4.MD.2, 4.MD.3, 5.NF.3
<p>Beast 4 Chapter 11: Decimals</p> <ul style="list-style-type: none"> Students will understand that decimals are just another way to write fractions and that place value is especially important to understanding how decimals and fractions relate. Standards: 4.NF.5, 4.NF.6, 4.NF.7, 4.MD.2, 5.NBT.1, 5.NBT.4, 5.NBT.7
<p>Beast 4 Chapter 12: Probability</p> <ul style="list-style-type: none"> Students will apply their knowledge of counting to problems focused on probability, or how likely specific events are to happen. Standards: 7.SP.5, 7.SP.6, 7.SP.8

Tetra Math 4.5

Beast Academy 4 is designed for students ages 10-12, and Beast Academy 5 is designed for students ages 11-13. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten and Fractions, Measurement and Data, Geometry, and Evaluating Expressions. All Beast Academy courses are focused on problem solving and puzzle-based learning. Standards covered in this course range from 4th-8th Grade standards.

<p>Beast 4 Chapter 7: Factors</p> <ul style="list-style-type: none"> Students will gain an understanding of factoring and prime factorization, along with divisibility rules for multi-digit numbers. Standards: 4.OA.3, 4.OA.4 	<ul style="list-style-type: none"> Students will apply their knowledge of counting to problems focused on probability, or how likely specific events are to happen. Standards: 7.SP.5, 7.SP.6, 7.SP.8
<p>Beast 4 Chapter 8: Fractions (Addition and Subtraction)</p> <ul style="list-style-type: none"> Students will add and subtraction fractions and mixed numbers with the same denominator through the use of a number line. Standards: 4.NF.1, 4.NF.2, 4.NF.3, 4.MD.2 	<p>Beast 5 Chapter 1: 3D Solids</p> <ul style="list-style-type: none"> Students will explore three-dimensional solids and their surface area and volume, including a variety of polyhedrons such as prisms and pyramids. Standards: 5.MD.3, 5.MD.4, 5.MD.5, 5.G.3, 6.G.1, 6.G.4, 7.G.6
<p>Beast 4 Chapter 9: Integers</p> <ul style="list-style-type: none"> Students will perform addition and subtraction operations using positive and negative integers with an understanding that numbers that are further left on the number line are less than numbers to the right. Standards: 6.NS.6, 6.NS.7, 7.NS.1 	<p>Beast 5 Chapter 2: Integers</p> <ul style="list-style-type: none"> Students will perform multiplication and division operations using positive and negative integers through the discovery of why rules and patterns are true. Standards: 6.NS.5, 6.NS.7, 6.EE.1, 7.NS.1, 7.NS.2, 7.NS.3, 7.EE.3
<p>Beast 4 Chapter 10: Fractions (Multiplication and Division)</p> <ul style="list-style-type: none"> Students will multiply whole numbers by fractions and divide whole numbers by unit fractions while gaining an understanding of what it means to multiply for divide a fraction. Standards: 4.OA.2, 4.OA.3, 4.NF.1, 4.NF.2, 4.NF.4, 4.MD.2, 4.MD.3, 5.NF.3 	<p>Beast 5 Chapter 3: Expressions and Equations</p> <ul style="list-style-type: none"> Students will begin the transition from arithmetic to prealgebra by becoming fluent in simplifying expressions and solving equations. Standards: 5.Ao.1, 6.EE.2, 6.EE.3, 6.EE.4, 6.EE.5, 6.EE.6, 6.EE.7
<p>Beast 4 Chapter 11: Decimals</p> <ul style="list-style-type: none"> Students will understand that decimals are just another way to write fractions and that place value is especially important to understanding how decimals and fractions relate. Standards: 4.NF.5, 4.NF.6, 4.NF.7, 4.MD.2, 5.NBT.1, 5.NBT.4, 5.NBT.7 	<p>Beast 5 Chapter 4: Statistics</p> <ul style="list-style-type: none"> Students will explore four basic statistical measures: average (mean), median, mode, and range. Students will apply these measures to describe sets of data. Standards: 5.OA.2, 6.SP.2, 6.SP.3, 6.SP.4, 6.SP.5
<p>Beast 4 Chapter 12: Probability</p>	<p>Beast 5 Chapter 5: Factors and Multiples</p> <ul style="list-style-type: none"> Students will apply prime factorization and the relationship between factors and multiples to greatest common factor (GCM) and least common multiple (LCM). Standards: 4.OA.4, 6.NS.4
	<p>Beast 5 Chapter 6: Fractions</p> <ul style="list-style-type: none"> Students will apply everything they have learned about fractions. Students will add, subtract, multiply, and divide fractions and mixed numbers with a conceptual understanding of how each operation works with fractions. Standards: 5.NF.1, 5.NF.2, 5.NF.3, 5.NF.4, 5.NF.5, 5.NF.6, 6.NS.1

Tetra Math 5

Beast Academy 5 is designed for students ages 11-13. Students focus on skills in Operations and Algebraic Thinking, Numbers and Operations in Base Ten and Fractions, Measurement and Data, Geometry, and Evaluating Expressions. All Beast Academy courses are focused on problem solving and puzzle-based learning. Standards covered in this course range from 4th-8th Grade standards.

<p>Beast 5 Chapter 1: 3D Solids</p> <ul style="list-style-type: none"> Students will explore three-dimensional solids and their surface area and volume, including a variety of polyhedrons such as prisms and pyramids. Standards: 5.MD.3, 5.MD.4, 5.MD.5, 5.G.3, 6.G.1, 6.G.4, 7.G.6
<p>Beast 5 Chapter 2: Integers</p> <ul style="list-style-type: none"> Students will perform multiplication and division operations using positive and negative integers through the discovery of why rules and patterns are true. Standards: 6.NS.5, 6.NS.7, 6.EE.1, 7.NS.1, 7.NS.2, 7.NS.3, 7.EE.3
<p>Beast 5 Chapter 3: Expressions and Equations</p> <ul style="list-style-type: none"> Students will begin the transition from arithmetic to prealgebra by becoming fluent in simplifying expressions and solving equations. Standards: 5.Ao.1, 6.EE.2, 6.EE.3, 6.EE.4, 6.EE.5, 6.EE.6, 6.EE.7
<p>Beast 5 Chapter 4: Statistics</p> <ul style="list-style-type: none"> Students will explore four basic statistical measures: average (mean), median, mode, and range. Students will apply these measures to describe sets of data. Standards: 5.OA.2, 6.SP.2, 6.SP.3, 6.SP.4, 6.SP.5
<p>Beast 5 Chapter 5: Factors and Multiples</p> <ul style="list-style-type: none"> Students will apply prime factorization and the relationship between factors and multiples to greatest common factor (GCM) and least common multiple (LCM). Standards: 4.OA.4, 6.NS.4
<p>Beast 5 Chapter 6: Fractions</p> <ul style="list-style-type: none"> Students will apply everything they have learned about fractions. Students will add, subtract, multiply, and divide fractions and mixed numbers with a conceptual understanding of how each operation works

<p>with fractions.</p> <ul style="list-style-type: none"> Standards: 5.NF.1, 5.NF.2, 5.NF.3, 5.NF.4, 5.NF.5, 5.NF.6, 6.NS.1
<p>Beast 5 Chapter 7: Sequences</p> <ul style="list-style-type: none"> Students will work with patterns and arithmetic sequences and describe them using algebraic expressions. Standards: 4.OA.5, 6.EE.2
<p>Beast 5 Chapter 8: Ratios and Rates</p> <ul style="list-style-type: none"> Students will work with ratios to describe a relationship between two quantities. Students will understand the relationship between ratios and fractions while noting the differences between them. Standards: 5.MD.1, 6.RP.1, 6.RP.2, 6.RP.3, 7.RP.1, 7.RP.2, 7.RP.3
<p>Beast 5 Chapter 9: Decimals</p> <ul style="list-style-type: none"> Students will multiply decimals and convert between fractions and decimals. Standards: 5.NBT.1, 5.NBT.2, 5.NBT.3, 5.NBT.4, 5.NBT.7, 7.NS.2
<p>Beast 5 Chapter 10: Percents</p> <ul style="list-style-type: none"> Students will explore the relationship between percents and ratios and understand that percents give us a standard way to write ratios for the sake of comparison. Standards: 6.RP.3, 7.RP.2, 7.RP.3, 7.EE.2, 7.EE.3
<p>Beast 5 Chapter 11: Square Roots</p> <ul style="list-style-type: none"> Students will explore square roots and gain an understanding that the square root of a number is a number that is squared to get a product. Standards: 6.EE.1, 8.EE.2, 8.NS.2, 8.G.6, 8.G.7, 8.G.8
<p>Beast 5 Chapter 12: Exponents</p> <ul style="list-style-type: none"> Students will continue their exploration of exponents and their discovery of rules that can be applied, including multiplying and dividing powers, zero, and negative exponents, raising a power to a power, and same exponents. Standards: 6.EE.1, 8.EE.1, 8.EE.3, 8.EE.4

Telra Math 6

Art of Problem Solving's Prealgebra course prepares students for the rigors of algebra and also teaches students problem-solving techniques to become more adept problem solvers, both in mathematics and in real-world application. The text is written to challenge students at a much deeper level than a traditional middle school prealgebra course. Students explore topics in number theory and algebra, including common divisors and multiples, primes and prime factorizations, basic equations and inequalities, ratios, geometric tools and strategies, and more.

Prealgebra Chapter 1: Properties of Arithmetic Students will learn rigorous definitions of arithmetic basics and apply arithmetic rules to make seemingly complicated calculations simple.
Prealgebra Chapter 2: Exponents Students will explore exponentiation and powers, exponent laws, zero as an exponent, and negative exponents.
Prealgebra Chapter 3: Number Theory Students will apply their understanding of multiples and divisibility, prime numbers, composite numbers, prime factorization, the Fundamental Theorem of Arithmetic, least common multiple (LCM), and greatest common divisor (GCD).
Prealgebra Chapter 4: Fractions Students will develop a rigorous definition of fractions and perform arithmetic operations with fractions and mixed numbers. Students will also compare and simplify fractions and apply their knowledge of fractions to word problems.
Prealgebra Chapter 5: Equations & Inequalities Students will work with expressions and equations with a focus on linear equations. Students will apply linear equations to word problems. Students will also work with inequalities, focusing on the principles of inequalities and linear inequalities.
Prealgebra Chapter 6: Decimals Students will define decimal notation and engage in a rigorous exploration of arithmetic with decimals. Students will work with decimal comparison and approximation, conversion between fractions and decimals, and rational numbers and their decimal representation.
Prealgebra Chapter 7: Ratios, Conversions, & Rates

Students will define ration and proportion and apply proportional thinking to problem solving that requires part-to-part and part-to-whole ratios. Students will explore variables in ratios and proportions and will work with unit conversion using conversion factors. Students will also explore the relationship between speed, distance, and time, along with relative speed and average speed.

Prealgebra Chapter 8: Percents

Students will begin by defining percent and focusing on the relationships among percents, fractions, and decimals. Students will apply their understanding of percents to word problems, including percent increase and decrease problems.

Prealgebra Chapter 9: Square Roots

Students will work with equations with square roots, including non-integer square roots, simplification of square roots, and arithmetic with square roots.

Prealgebra Chapter 10: Angles

Students will work with angle measurement, parallel lines, angles in a triangle, and angles in other polygons.

Prealgebra Chapter 11: Perimeter & Area

Students will explore segments and perimeter. Students will also work with triangle inequality and triangle area. Then, students will explore the circumference and area of a circle, concluding with a student of unusual areas.

Prealgebra Chapter 12: Right Triangles & Quadrilaterals

Students will use the Pythagorean Theorem and explore Pythagorean triples, along with specific types of right triangles. Students will then dive into the types of quadrilaterals and their attributes, along with quadrilateral area.

Prealgebra Chapter 13: Data & Statistics

Students will find the average (mean) of data sets and explore averages as a balancing act. Students will also determine median, mode, and range of data sets and will gain an understanding of the limits of basic statistics. Students will also explore graphs and charts used in basic statistics.

Prealgebra Chapter 14: Counting

Students will explore numbers in lists, Venn diagrams, multiplication principle, casework, pairs, and an introduction to probability.

Prealgebra Chapter 15: Problem-Solving Strategies

Students will put everything together they have learned with a focus on strategies such as finding a pattern, making a list, drawing a picture, and working backwards.

Telra Math 7

Art of Problem Solving's Introduction to Algebra course is a thorough introduction for students in grades 6-9 to algebra topics such as linear equations, ratios, quadratic equations, special factorizations, complex numbers, graphing linear and quadratic equations, linear and quadratic inequalities, functions, polynomials, exponents and logarithms, absolute value, sequences and series, and more! The text is written to challenge students at a much deeper level than a traditional algebra course.

Algebra Chapter 1: Follow the Rules Students will review the rules and properties of arithmetic and apply those rules to equations. Students will also review exponents, fractional exponents, and radicals.	graph inequalities. Students will also complete optimization problems in which they find the minimum or maximum possible value of a quantity.
Algebra Chapter 2: x Marks the Spot Students will work with expressions with and without fractions with a focus on distribution, subtraction, and factoring.	Algebra Chapter 10: Quadratic Equations – Part 1 Students will factor quadratic equations and work with the sums and products of roots of a quadratic.
Algebra Chapter 3: One-Variable Linear Equations Students will be introduced to linear equations beginning with one variable. Students will apply what they learn to solving word problems involving one-variable linear equations.	Algebra Chapter 11: Special Factorizations Students will work with special factorizations, including difference of squares, squares of binomials, and sums and differences of cubes.
Algebra Chapter 4: More Variables Students begin to work with multiple variables by evaluating expressions through distribution and factoring.	Algebra Chapter 12: Complex Numbers Students will be introduced to complex numbers and imaginary numbers. Students will complete arithmetic problems involving complex numbers.
Algebra Chapter 5: Multi-Variable Linear Equations Students will be introduced to multi-variable linear equations and will use substitution and elimination. Students will apply their learning to word problems and explore linear equations in disguise.	Algebra Chapter 13: Quadratic Equations – Part 2 Students will continue their study of quadratic equations with completing the square and the quadratic formula.
Algebra Chapter 6: Ratios and Percents Students will work with ratios, conversion factors, and percents and will understand the relationship between ratios and percents. Students will also work with percentage problems to apply their learning.	Algebra Chapter 14: Graphing Quadratics Students will graph quadratic equations, including parabolas and circles.
Algebra Chapter 7: Proportion Students will explore direction, inverse, and joint proportion and will apply their learning to rate problems.	Algebra Chapter 15: More Inequalities Students will continue their study of inequalities by applying their understanding to quadratics and moving beyond quadratics. Students will also explore the Trivial Inequality.
Algebra Chapter 8: Graphing Lines Students will explore number lines and the Cartesian Plane to graph linear equations. Students will become familiar with slope, intercepts, and equations and will be able to compare lines.	Algebra Chapter 16: Functions Students will be introduced to functions and will combine functions, find inverse functions, and explore problem solving with functions.
Algebra Chapter 9: Introduction to Inequalities Students will work with linear inequalities and will	Algebra Chapter 17: Graphing Functions Students will begin with the basics of graphing functions, after which they will explore transformations and graphing inverse functions.
	Algebra Chapter 18: Polynomials Students will work with polynomials using addition, subtraction, and multiplication.
	Algebra Chapter 19: Exponents and Logarithms Students will explore exponential functions and interest, then move into defining and applying logarithms.
	Algebra Chapter 20: Special Functions Students will work with radicals, absolute value, floor and ceiling, and rational functions.
	Algebra Chapter 21: Sequences and Series Students will explore arithmetic sequences and series, geometric sequences and series, and telescoping.
	Algebra Chapter 22: Special Manipulations Students will raise equations to powers and explore the concepts of self-similarity and symmetry.

Telra Math 8A

This is Part A of a two part course that prepares students to tackle Math 2 content. Geometry is a challenging geometry course for students aimed at students in grades 7-10, including topics such as similar triangles, congruent triangles, quadrilaterals, polygons, circles, funky areas, power of a point, three-dimensional geometry, transformations, and introductory trigonometry. These texts are written to challenge students at a much deeper level than traditional courses for the grade levels.

Geometry Chapter 1: What's in a Name? Students will develop an understanding of the vocabulary of geometry, beginning with points, lines, and planes. Students will begin to explore the idea of proof and how it relates to geometric concepts.	in on trapezoids, parallelograms, rhombi, rectangles, and squares. Students will explore the idea of if and only if as applied to quadrilaterals and will apply their learning to a variety of problems.
Geometry Chapter 2: Angles Students will measure angles, distinguish between straight and vertical angles, explore parallel lines, and determine angles in a triangle.	Geometry Chapter 9: Polygons Students will be introduced to polygons and spend time working with angles in a polygon. Students will find the area of polygons and will work to construct regular polygons.
Geometry Chapter 3: Congruent Triangles Students will explore the different types of congruence as it relates to sides and angles in triangles. Students will also learn about isosceles and equilateral triangles and how the perpendicular bisector relates to equilateral triangles.	Geometry Chapter 10: Geometric Inequalities Students work with the Triangle Inequality and will learn about the sides and angles of a triangle.
Geometry Chapter 4: Perimeter and Area Students will find the perimeter and area of a variety of shapes and will work with shapes that have the same base and same altitude.	Geometry Chapter 11: Circles Students will learn to calculate arc measure, arc length, and circumference of circles, along with how to find the area of a circle.
Geometry Chapter 5: Similar Triangles Students will define similarity and learn about three types of similarity (AA, SAS, and SSS). Students will also use similarity to solve problems and will construct angles and parallels.	Geometry Chapter 12: Circles and Angles Students will discover inscribed angles along with angles inside and outside circles. Students will also be introduced to tangents and learn to construct them.
Geometry Chapter 6: Right Triangles Students will apply the Pythagorean Theorem to right triangles and will learn about two special types of right triangles. Students will also apply congruence and similarity to right triangles and will learn Heron's formula.	Geometry Chapter 13: Power of a Point Students will learn what power of a point is and apply their learning to a variety of types of problems.
Geometry Chapter 7: Special Parts of a Triangle Students will discover special parts of a triangle, including bisectors, perpendicular bisectors, angle bisectors, medians, and altitudes. Students will apply their knowledge of these special parts to challenging problems and to the construction of bisectors.	Geometry Chapter 14: Three-Dimensional Geometry Students will work in a variety of planes with prisms, pyramids, and regular polyhedral.
Geometry Chapter 8: Quadrilaterals Students will review quadrilateral basics, then focus	Geometry Chapter 15: Curved Surfaces Students will learn to work with cylinders, cones, and spheres, applying their geometric knowledge of circles to the three-dimensional world.
	Geometry Chapter 16: The More Things Change Students will complete translations, rotations, reflections, and dilation. Students will construct transformations.
	Geometry Chapter 17: Analytic Geometry Students will study lines, circles, and applications in analytic geometry. Students will also work with proofs as they apply to analytic geometry and will calculate the distance between a point and a line.
	Geometry Chapter 18: Introduction to Trigonometry Students will gain a basic understanding of trigonometry and how trigonometry relates to right triangles. Students will also focus on how trigonometry can be applied outside of right triangles and will learn the Law of Sines and Law of Cosines.
	Geometry Chapter 19: Problem Solving Strategies in Geometry Students will focus on using proofs in a variety of geometry-based problems.

Telra Math 8B

Telra Math 8B covers both Counting & Probability and Number Theory. Counting & Probability (C&P) is a thorough introduction aimed at students in grades 7-10 to counting and probability topics such as permutations, combinations, Pascal's triangle, geometric probability, basic combinatorial identities, and the Binomial Theorem.

C&P Chapter 1: Counting is Arithmetic Students will use their knowledge of counting with lists of numbers and move to incorporating addition and subtraction and multiple events. Students will also explore how counting relates to permutations.	Students will explore problems using length and area with probability.
C&P Chapter 2: Basic Counting Techniques Students will learn a variety of counting techniques that they will use as they apply their skills to different types of problems, including casework, complementary counting, constructive counting, and counting with restrictions.	C&P Chapter 11: Expected Value Students will define expected value and apply expected value to a variety of problems.
C&P Chapter 3: Correcting for Overcounting Students will explore permutations with repeated elements, counting pairs of items, and counting with symmetries to correct for overcounting.	C&P Chapter 12: Pascal's Triangle Students will learn to construct Pascal's Triangle and explore more combinatorial identities.
C&P Chapter 4: Committees and Combinations Students will practice committee forming and learn to compute combinations. Students will then be introduced to their first combinatorial identity.	C&P Chapter 13: The Hockey Stick Identity Students will be introduced to the Hockey Stick Identity and will explore both a step-by-step solution and an alternate solution.
C&P Chapter 5: More with Combinations Students will apply their knowledge to more combinations, including paths on a grid, committee-type problems, and distinguishability.	C&P Chapter 14: The Binomial Theorem Students will learn the binomial theorem, applications of the theorem, and how to use the theorem in identities.
C&P Chapter 6: Some Harder Counting Problems Students will use their problem solving knowledge to work through more challenging counting problems to wrap on their study of counting.	C&P Chapter 15: More Challenging Problems Students will apply what they have learned so far about probability to challenging problems.
C&P Chapter 7: Introduction to Probability Students will explore basic probability, equally likely outcomes, and the application of counting techniques in probability problems.	NT Chapter 1: Integers Students will name types of integers and will review relationships between integers, their multiples, and their divisors.
C&P Chapter 8: Basic Probability Techniques Students will explore how addition and multiplication factor into probability through complementary probability and probability with dependent events.	NT Chapter 2: Primes and Composites Students will work with prime and composite numbers, including identifying examples of each and solving problems involving both.
C&P Chapter 9: Think About It! Students will apply what they have learned so far about probability to challenging problems.	NT Chapter 3: Multiples and Divisors Students will continue to explore the many relationships between integers, their multiples, and their divisors.
C&P Chapter 10: Geometric Probability	NT Chapter 4: Prime Factorization Students will explore the ways prime factorization helps make problems such as finding common multiples and common divisors of groups of integers much easier—particularly when large integers are involved. Knowing how to work with large integers significantly increases the range of problems students can solve.
	NT Chapter 5: Divisor Problems Students will discuss a method (and develop a formula) for counting the number of positive divisors of an integer. Students will then use this method flexibly to count divisors that possess certain properties (multiples of 2, squares, cubes, etc.) and solve other problems.
	NT Chapter 6: Special Numbers Students will explore several interesting types of numbers and their number theoretic properties
	NT Chapter 7: Algebra with Integers While different areas of mathematics can be very useful on their own, they are far more powerful (and

more interesting!) when used together. Students will take the material covered in the first few chapters and apply it to problems that test their understanding of both number theory and algebra.

NT Chapter 8: Base Numbers

This chapter revolves around different methods for writing numbers with an exploration of the use of different numbers of digits.

NT Chapter 9: Base Number Arithmetic

Students will perform arithmetic operations on base numbers.

NT Chapter 10: Units Digits

Students will explore the ways in which units digits behave within arithmetic. After exploring units digits in the decimal number system, students explore the ways in which units digits behave in other number base systems. Once familiar and comfortable with all of the lessons in this chapter, students will be ready to explore a much deeper realm of number theory using a tool known as modular arithmetic.

NT Chapter 11: Decimals and Fractions

Students will explore important and useful relationships between decimals and fractions. Not only do the methods discussed help us convert between decimals and fractions, a highly useful skill on its own, but they also build an understanding of numbers in a way that helps students solve different types of problems.

NT Chapter 12: Introduction to Modular Arithmetic

Students will explore the area of number theory known as modular arithmetic.

NT Chapter 13: Divisibility Rules

Students explore divisibility rules—rules that help us determine when any given integer is divisible by particular positive integers.

NT Chapter 14: Linear Congruences

Students will explore both how to determine when linear congruences have solutions and how to find any solutions they have.

NT Chapter 15: Number Sense

Students will focus entirely on problem solving techniques. Just as importantly, they will explore methods that help us use our familiarity with numbers to solve problems more efficiently. This useful familiarity is referred to as number sense.

Telra Math 9

Art of Problem Solving's Intermediate Algebra is a comprehensive textbook covering Algebra 2 and topics in Precalculus. This book is the follow-up to the acclaimed Introduction to Algebra textbook. In addition to offering standard Algebra 2 and Precalculus curriculum, the text includes advanced topics

Intermediate Algebra Chapter 1: Basic Techniques for Solving Equations

Students will use basic techniques for solving equations, starting with isolation, substitution, and elimination methods. It also covers solving larger systems of linear equations and concludes with a summary of the key concepts discussed.

Intermediate Algebra Chapter 2: Functions Review

Students will understand the fundamental concepts of functions, including their basics, graphing techniques, composition, and inverse functions. Students will apply key principles in function analysis and manipulation.

Intermediate Algebra Chapter 3: Complex Numbers

Students will explore the arithmetic of complex numbers, the complex plane, and real and imaginary parts. Students will then graph in the complex plane.

Intermediate Algebra Chapter 4: Quadratics

Students will factor quadratics, relate roots and coefficients, and complete the square. Students will then examine the discriminant and quadratic inequalities.

Intermediate Algebra Chapter 5: Conics

Students will learn definitions of the conic sections, and the important points, lines, and segments associated with each type of conic section. Students will use these definitions to create general formulas that can be used to solve specific problems, and students will also learn how to use definitions to tackle some problems without resorting to formulas.

Intermediate Algebra Chapter 6: Polynomial Division

Students will review polynomial addition, multiplication, and evaluation prior to moving into polynomial division, including synthetic division and the Remainder Theorem.

Intermediate Algebra Chapter 7: Polynomial Roots Part I

Students will use the factor theorem and will work with integer roots and rational roots. Students will also explore graphing and the Fundamental Theorem of Algebra.

Intermediate Algebra Chapter 8: Polynomial Roots Part II

Students will continue to work with polynomial roots moving into higher level content.

Intermediate Algebra Chapter 9: Factoring Multivariable Polynomials

Students will work with irrational roots and nonreal roots and use roots to make equations.

Intermediate Algebra Chapter 10: Sequences and Series Equations – Part 1

Students will learn the Factor Theorem for Multivariable Polynomials and work with sums and difference of powers.

Intermediate Algebra Chapter 11: Identities, Manipulations, and Induction

Students will explore various mathematical techniques and principles, including identities, manipulations, and induction. Students will cover methods such as brute force, ratios, mathematical induction, and the binomial theorem to solve problems and prove statements.

Intermediate Algebra Chapter 12: Inequalities

Students will delve into the topic of inequalities, detailing methods to manipulate them and prove their validity. Students will work with specific inequalities, such as the trivial inequality, the AM-GM inequality for both two and more variables, the Cauchy-Schwarz inequality, and techniques for finding maxima and minima.

Intermediate Algebra Chapter 13: Exponents and Logarithms

Students will focus on exponents and logarithms, starting with the basics of exponential functions and an introduction to logarithms. They will discuss logarithmic identities, how to use them, the relationship between logs and exponents, and covers natural logarithms and exponential decay.

Intermediate Algebra Chapter 14: Radicals

Students will focus on radicals, starting with raising radicals to powers and moving to evaluating expressions involving radicals. The chapter also covers radical conjugates and concludes with a summary of key concepts.

Intermediate Algebra Chapter 15: Special Classes of Functions

Students will explore special classes of functions, beginning with rational functions and their graphs, followed by rational function equations and inequalities. It also covers even and odd functions, monotonic functions, and concludes with a summary of the key concepts.

Intermediate Algebra Chapter 16: Piecewise

Defined Functions

Students will delve into piecewise defined functions, starting with an introduction to the concept and progressing to absolute value and graphing absolute value functions. It also explores the floor and ceiling functions, including problem-solving with the floor function, and concludes with a summary of the chapter's key concepts.

Intermediate Algebra Chapter 17: More Sequences and Series

Students will continue the exploration of sequences and series, covering topics such as the algebra of recursive sequences, telescoping, and sums of polynomial series. It also discusses arithmetico-geometric series and finite differences, concluding with a summary of the chapter's key concepts.

Intermediate Algebra Chapter 18: More Inequalities

Students will focus on advanced inequalities, covering the mean inequality chain, the rearrangement inequality, and addressing situations where standard formulas fail. The chapter concludes with a summary of the key concepts discussed.

Intermediate Algebra Chapter 19: Functional Equations

Students will explore functional equations, beginning with techniques for finding values and functions through substitution. It also covers separation methods and cyclic functions, and concludes with a summary of the key concepts.

Intermediate Algebra Chapter 20: Some Advanced Strategies

Students will work with advanced mathematical strategies, including concepts of symmetry and substitution for simplification. The chapter also explores the method of undetermined coefficients, constructing polynomials from roots, common divisors of polynomials, and revisits symmetric sums, concluding with a summary of the key ideas.