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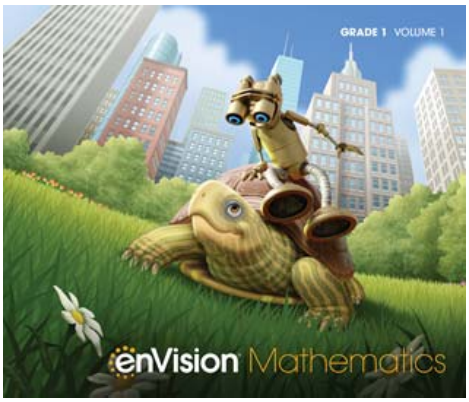

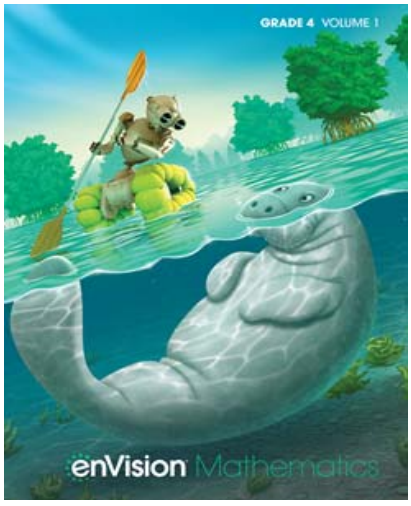

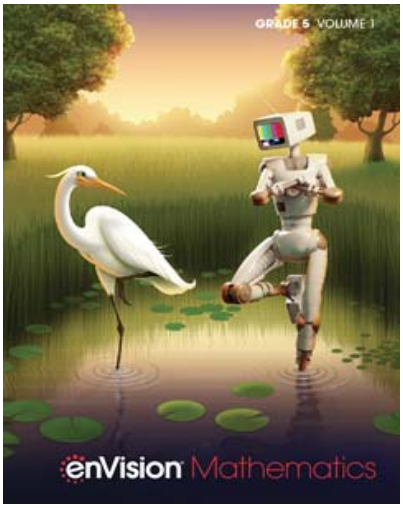

To the

Kentucky Academic Standards Mathematics 2019 Grades K-5

SAVVAS

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Introduction

The new enVision® Mathematics ©2020 is the latest offering of the nationally recognized Grades K-12 series, created for print, digital, and blended instruction. Problem-Based Learning connects with Visual Learning to deep conceptual understanding. Interactive multimedia experiences engage learners in student choice and solving rich problems. Extensive customization and differentiation options empower every teacher and student.

UNDERSTANDING
A simple lesson design provides a clear, intentional pathway. Starting on a firm foundation of conceptual understanding, students can connect and apply math ideas in amazing ways. High-interest math projects invite all students to be active participants.

A simple lesson design provides a clear, intentional pathway.

STEP 1 Problem-Based Learning
STEP 2 Visual Learning
STEP 3 Assess and Differentiate

ASSESSMENT
The enVision Assessment Suite offers options to move students toward mastery of state standards while driving instructional differentiation.

DIAGNOSTIC Assessment
Reading Test, Diagnostic Test (Math Diagnosis and Intervention System), Review What You Know
FORMATIVE Assessment
SCOUT Observational Assessment used during Solve & Share, Do You Understand? And Convince Me! Guide Practice, Quick Check
SUMMATIVE Assessment
Topic Assessments, Topic Performance Assessments, Examview Test Generator, Fluency Assessments, Cumulative/Benchmarks Assessments, Progress Monitoring Assessments

INSTRUCTIONAL SUPPORT
Gain a new perspective on your teaching with embedded strategies, methods, and a wide range of Professional Development opportunities in print and digital formats.

Ideas, Inspiration, and Teaching Methods
Math background for every Topic and Lesson serves as an easy-to-access math methods course.

Make every lesson perfect for you. Access all digital content, assessments, and management tools at SavvasRealize.com.

Kids See the Math. Teachers See Results.

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Mathematical Practice Standards	
1 Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages at SavvasRealize.com, along with the Math Practices Posters, and supporting Math Practices Animations. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **Student's Edition and Teacher's Edition pages** 21–24, 29–32, 77–80, 145–148, 157–160, 173–176, 181–184, 205–208, 217–220, 225–228, 265–268, 273–276, 297–300, 305–308, 317–320

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2 Reason abstractly and quantitatively.	enVision Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **Student's Edition and Teacher's Edition pages** 5–8, 9–12, 25–28, 33–36, 41–44, 61–64, 65–68, 93–96, 97–100, 101–104,113–116, 117–120, 145–148, 149–152, 177–180
3 Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program specifically call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own processes and those of others. **Student's Edition and Teacher's Edition pages** 5–8, 9–12, 13–16, 17–20, 41–44, 65–68, 69–72, 73–76, 77–80, 93–96, 101–104, 105–108, 109–112, 117–120, 141–144

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4 Model with mathematics.	Students using enVision Mathematics are introduced to mathematical modeling in the early grades. They first use manipulatives and drawings and then equations to model addition and subtraction situations. The Visual Learning Bridge and Visual Learning Animation Plus often present real-world situations, and students are shown how these can be modeled mathematically. In later grades, students expand their modeling skills to include representations such as tables and graphs, as well as equations. **Student's Edition and Teacher's Edition pages** 9–12, 17–20, 21–24, 25–28, 29–32, 69–72, 77–80, 93–96, 109–112, 141–144, 153–156, 201–204, 209–212, 217–220, 221–224
5 Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, rulers, protractors, and even pencil and paper, to digital tools, such as Online Math Tools and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **Student's Edition and Teacher's Edition pages** 5–8, 13–16, 17–20, 33–36, 41–44, 97–100, 105–108, 109–112, 113–116, 121–124, 149–152, 157–160, 181–184, 205–208, 273–276

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6 Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms and concepts are highlighted in each lesson. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **Student's Edition and Teacher's Edition pages** 13–16, 25–28, 29–32, 61–64, 65–68, 73–76, 97–100, 105–108, 149–152, 153–156, 173–176, 177–180, 185–188, 201–204, 213–216
7 Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. As students mature in their mathematical thinking, they look for structure in numerical operations by focusing on place value and properties of operations. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **Student's Edition and Teacher's Edition pages** 37–40, 61–64, 117–120, 121–124, 181–184, 225–228, 269–272, 293–296, 317–320, 321–324, 329–332, 357–360, 361–364, 365–368, 369–372

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8 Look for and express regularity in repeated reasoning.	Students are prompted to look for repetition in computations to help them develop shortcuts and become more efficient problem solvers. Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. The Problem-Based Learning activities offer students opportunities to look for regularity in the way operations behave. **Student's Edition and Teacher's Edition pages** 21–24, 37–40, 73–76, 113–116, 121–124, 141–144, 157–160, 177–180, 209–212, 269–272, 293–296, 317–320, 325–328, 329–332, 353–356
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b. Count backwards from 30 by ones.	**MDIS:** A14, A15
KY.K.CC.2 Count forward beginning from a given number within the known sequence within 100 (instead of having to begin at 1).	**SE:** 92, 117–120, Reteaching: 130 Set G; 149–152, 157–160, 248, 347, 348, 365–368, 373–376, Reteaching: 380 Set D; 431, 432, 433–436, 437–440, 441–444, 445–448, 449–452, Reteaching: 456 Set D **TE:** 92- 92C, 117A–120B, Reteaching: 129–130 Set G; 149A–152B, 157A–160B, 248–248C, 347–347A, 348–348C, 365A–368B, 373A–376B, Reteaching: 380 Set D; 431–431A, 432–432C, 433A–436B, 437A–440B, 441A–444B, 445A–448B, 449A–452B, Reteaching: 456 Set D

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b. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	**SE:** 3, 4, 13–16, 25–28, 33–36, Reteaching: 47-49 Sets B, E; 59–60, 73–76, 77–80, 91, 92, 97–100, 105–108, 113–116, 121–124, Reteaching: 127-129,Sets A, C, E; 199–200, 201–204, 205–208, 209–212, 213–216, 247, 248, 249–252, 253–256, 257–260, 261–264, 291–292, 317–320, 325–328, 329–332, 347, 348, 349–352, 353–356, 357–360, 361–364, Reteaching: 379 Set A **TE:** 3–3A, 4–4C, 13A–16B, 25A–28B, 33A–36B, Reteaching: 47–50,Sets B, E; 59–60A, 73A–76B, 77A–80B, 91–91A, 92–92C, 97A–100B, 105A–108B, 113A–116B, 121A–124B, Reteaching: 127–130 ,Sets A, C, E; 199–200A, 201A–204B, 205A–208B, 209A–212B, 213A–216B, 247–247A, 248–248C, 249A–252B, 253A–256B, 257A–260B, 261A–264B, 291–292A, 317A–320B, 325A–328B, 329A–332B, 347–347A, 348–348C, 349A–352B, 353A–356B, 357A–360B, 361A–364B, Reteaching: 379 Set A
Cluster: Count to tell the number of objects.	
KY.K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality.	**SE:** 369–372 **TE:** 369A–372B
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b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.	**SE:** 3, 4, 9–12, 21–24, 41–44, Reteaching: 50 Set F; 91, 109–112, 121–124, Reteaching: 127–128 Sets B, D **TE:** 3–3A, 4–4C, 9A–12B, 21A–24B, 41A–44B, Reteaching: 49–50 Set F; 91–91A, 109A–112B, 121A–124B, Reteaching: 127–128 Sets B, D
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a. Count to answer “how many?” questions with as many as 20 things arranged in a line, a rectangular array, or a circle.	**SE:** 3, 4, 5–8, 9–12, 13–16, 17–20, 21–24, 25–28, 29–32, 33–36, 41–44, Reteaching: 47- 50 Sets A, C, F; 59–60, 61–64, 65–68, 69–72, 73–76, 91, 92, 93–96, 97–100, 101–104, 105–108, 113–116, 139–140, 141–144, 171, 173–176, 177–180, 199–200, 201–204, 247, 249–252, 347, 348, 349–352, 353–356, 357–360, 361–364, 369–372, 373–376, Reteaching: 379-380 Sets A, C, D; 387–388, 389–392, 393–396, 397–400, 401–404, 405–408, 409–412, 413–416, 513–516, 525–528, 529–532, 533–536

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(Continued) a. Count to answer "how many?" questions with as many as 20 things arranged in a line, a rectangular array, or a circle.	**TE:** 3–3A, 4–4C, 5A–8B, 9A–12B, 13A–16B, 17A–20B, 21A–24B, 25A–28B, 29A–32B, 33A–36B, 41A–44B, Reteaching: 47–50 Sets A, C, F; 59–60A, 61A–64B, 65A–68B, 69A–72B, 73A–76B, 91–91A, 92–92C, 93A–96B, 97A–100B, 101A–104B, 105A–108B, 113A–116B, 139–140A, 141A–144B, 171–171A,173A–176B, 177A–180B, 199–200A, 201A–204B, 247–247A, 249A–252B, 347–347A, 348-348C, 349A–352B, 353A–356B, 357A–360B, 361A–364B, 369A–372B, 373A–376B, Reteaching: 379-380 Sets A, C, D; 387–388A, 389A–392B, 393A–396B, 397A–400B, 401A–404B, 405A–408B, 409A–412B, 413A–416B, 513A–516B, 525A–528B, 529A–532B, 533A–536B
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KY.K.CC.7 Compare two numbers between 1 and 10 presented as written numerals.	**SE:** 139–140, 145–148, 149–152, 153–156, Reteaching: 163-164 Sets B, C; 171, 181–184, 185–188 **TE:** 139–140A, 145A–148B, 149A–152B, 153A–156B, Reteaching: 163-164 Sets B, C; 171–171A, 181A–184B, 185A–188B
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KY.K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10 by using objects or drawings to represent the problem.	**SE:** 199–200, 201–204, 205–208, 209–212, 213–216, 217–220, 221–224, 229–232, Reteaching: 237-238 Sets E-G; 247, 248, 249–252, 253–256, 257–260, 261–264, 265–268, 273–276, Reteaching: 280-282 Sets C, E, G, H; 291–292, 293–296, 309–312, 313–316, 321–324, 348 **TE:** 199–200A, 201A–204B, 205A–208B, 209A–212B, 213A–216B, 217A–220B, 221A–224B, 229A–232B, Reteaching: 237–238 Sets E, F, G; 247–247A, 248–248C, 249A–252B, 253A–256B, 257A–260B, 261A–264B, 265A–268B, 273A–276B, Reteaching: 279–282 Set C, E, F, H; 291–292A, 293A–296B, 309A–312B, 313A–316B, 321A–324B, 348–348C
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b. Use objects or drawings to demonstrate equality as the balancing of quantities.	**SE:** 293-296, 309-312, 313-316, 321-324, 325-328, 329-332 **TE:** 293A-296B, 309A-312B, 313A-316B, 321A–324B, 325A-328B, 329A-332B
KY.K.OA.4 For any number from 1 to 9, find the number that makes 10 when added to the given number by using objects or drawings and record the answer with a drawing or equation.	**SE:** 291–292, 325–328, 329–332, Reteaching: 338 Set H; 517–520, 521–524 **TE:** 291–292A, 325A–328B, 329A–332B, Reteaching: 337–338 Set H; 517A–520B, 521A–524B

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KY.K.NBT.1 Compose and decompose numbers from 11 to 19 using quantities (numbers with units) of ten ones and some further ones. Understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	**SE:** 387–388, 389–392, 393–396, 397–400, 401–404, 405–408, 409–412, 413–416, Reteaching: 419-422 Sets A-G **TE:** 387–388A, 389A–392B, 393A–396B, 397A–400B, 401A–404B, 405A–408B, 409A–412B, 413A–416B, Reteaching: 419–422 Sets A–G
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Cluster: Describe and compare measurable attributes.	
KY.K.MD.1 Describe measurable attributes (length, height, weight, width, depth) of an object or set of objects using appropriate vocabulary.	**SE:** 547–548, 549–552, 553–556, 557–560, 561–564, 565–568 **TE:** 547–548A, 549A–552B, 553A–556B, 557A–560B, 561A–564B, 565A–568B
KY.K.MD.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.	**SE:** 547–548, 549–552, 553–556, 557–560, 565–568, 569–572, Reteaching: 575-576 Sets A-D **TE:** 547–548A, 549A–552B, 553A–556B, 557A–560B, 565A–568B, 569A–572B, Reteaching: 575-576 Sets A, B, D
Cluster: Classify objects and count the number of objects in each category.	
KY.K.MD.3 Classify and sort objects or people by attributes. Limit objects or people in each category to be less than or equal to 10.	**SE:** 171, 172, 173–176, 177–180, 181–184, 185–188, Reteaching: 191-192 Sets A-D; 465–468 **TE:** 171–171A, 172–172C, 173A–176B, 177A–180B, 181A–184B, 185A–188B, Reteaching: 191–192 Sets A–D; 465A–468B

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Cluster: Identify coins by name.	
KY.K.MD.4 Recognize and identify coins by name (penny, nickel, dime, quarter).	**MDIS:** A61, A62, A63, A64, A65, A67
Geometry	
Cluster: Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
KY.K.G.1 Name and describe shapes in the environment.	**SE:** 463–464, 469–472, 473–476, 477–480, 481–484, 485–488, 489–492, Reteaching: 497-498 Sets F, G; 507, 508, 525–528 **TE:** 463–464A, 469A–472B, 473A–476B, 477A–480B, 481A–484B, 485A–488B, 489A–492B, Reteaching: 497–498 Sets F, G; 507–507A, 508–508C, 525A–528B
a. Describe objects in the environment using names of shapes.	**SE:** 463–464, 469–472, 473–476, 477–480, 481–484, 485–488, 489–492, Reteaching: 497-498 Sets F, G; 507, 508, 525–528 **TE:** 463–464A, 469A–472B, 473A–476B, 477A–480B, 481A–484B, 485A–488B, 489A–492B, Reteaching: 497–498 Sets F, G; 507–507A, 508–508C, 525A–528B
b. Describe the relative positions of these objects using terms *above*, *below*, *beside*, *in front of*, *behind* and *next to*.	**SE:** 463–464, 477–480, 485–488, 489–492, Reteaching: 497-498 Sets F, G **TE:** 463–464A, 477A–480B, 485A–488B, 489A–492B, Reteaching: 497–498 Sets F, G
KY.K.G.2 Correctly name shapes regardless of orientations or overall size.	**SE:** 463–464, 469–472, 473–476, 477–480, 481–484, 485–488, 489–492, Reteaching: 495-497 Sets B-E; 508 **TE:** 463–464, 469A–472B, 473A–476B, 477A–480B, 481A–484B, 485A–488B, 489A–492B, Reteaching: 495–498 Sets B–E; 508–508C

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KY.K.G.3 Identify shapes as two-dimensional or three-dimensional.	**SE:** 465–468, 485–488, Reteaching: 495 Set A; 507, 521–524 **TE:** 465A–468B, 485A–488B, Reteaching: 495–496 Set A; 507–507A, 521A–524B
Cluster: Analyze, compare, create, and compose shapes.	
KY.K.G.4 Describe the similarities, differences and attributes of two and three dimensional shapes using different sizes and orientations.	**SE:** 463–464, 473–476, 477–480, 481–484, 507, 509–512, 513–516, 517–520, 521–524, 529–532, Reteaching: 539-540 Sets A-D **TE:** 463–464A, 473A–476B, 477A–480B, 481A–484B, 507–507A, 509A–512B, 513A–516B, 517A–520B, 521A–524B, 529A–532B, Reteaching: 539-540 Sets A-D
KY.K.G.5 Model shapes in the world by building figures from components and drawing shapes.	**SE:** 507, 513–516, 525–528, 529–532, 533–536, Reteaching: 540 Set D **TE:** 507–507A, 513A–516B, 525A–528B, 529A–532B, 533A–536B, Reteaching: 540 Set D
KY.K.G.6 Compose simple shapes to form larger shapes.	**SE:** 463–464, 507, 508, 525–528, 533–536 **TE:** 463–464A, 507–507A, 508–508C, 525A–528B, 533A–536B

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Mathematical Practices	
1. Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages at SavvasRealize.com, along with the Math Practices Posters, and supporting Math Practices Animations. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **Student's Edition and Teacher's Edition pages** 9–12, 29–32, 33–36, 37–40, 61–64, 85–88, 117–120, 133–136, 137–140, 169–172, 185–188, 189–192, 193–196, 233–236, 253–256

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3. Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program specifically call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own processes and those of others. **Student's Edition and Teacher's Edition pages** 13–16, 21–24, 37–40, 61–64, 65–68, 69–72, 73–76, 89–92, 113–116, 117–120, 125–128, 129–132, 133–136, 141–144, 185–188
4. Model with mathematics.	Students using enVision Mathematics are introduced to mathematical modeling in the early grades. They first use manipulatives and drawings and then equations to model addition and subtraction situations. The Visual Learning Bridge and Visual Learning Animation Plus often present real-world situations, and students are shown how these can be modeled mathematically. In later grades, students expand their modeling skills to include representations such as tables and graphs, as well as equations. **Student's Edition and Teacher's Edition pages** 5–8, 17–20, 21–24, 25–28, 33–36, 57–60, 69–72, 73–76, 81–84, 85–88, 89–92, 113–116, 117–120, 125–128, 137–140

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5. Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, rulers, protractors, and even pencil and paper, to digital tools, such as Online Math Tools and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation**.** **Student's Edition and Teacher's Edition pages** 5–8, 17–20, 29–32, 81–84, 113–116, 129–132, 161–164, 165–168, 177–180, 185–188, 213–216, 293–296, 325–328, 365–368, 369–372
6. Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms and concepts are highlighted in each lesson. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **Student's Edition and Teacher's Edition pages** 37–40, 85–88, 189–192, 217–220, 221–224, 237–240, 253–256, 257–260, 261–264, 269–272, 289–292, 305–308, 329–332, 373–376, 377–380

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7. Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. As students mature in their mathematical thinking, they look for structure in numerical operations by focusing on place value and properties of operations. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **Student's Edition and Teacher's Edition pages** 9–12, 69–72, 73–76, 77–80, 81–84, 89–92, 129–132, 173–176, 221–224, 225–228, 265–268, 285–288, 293–296, 297–300, 301–304
8. Look for and express regularity in repeated reasoning	Students are prompted to look for repetition in computations to help them develop shortcuts and become more efficient problem solvers. Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. The Problem-Based Learning activities offer students opportunities to look for regularity in the way operations behave. **Student's Edition and Teacher's Edition pages** 13–16, 25–28, 57–60, 61–64, 133–136, 165–168, 169–172, 173–176, 177–180, 181–184, 229–232, 261–264, 285–288, 297–300, 309–312

A Correlation of enVision, ©2020 to the Kentucky Academic Standards Mathematics 2019

Kentucky Academic Standards Mathematics 2019 Grade 1	enVision, ©2020 Grade 1
Operations and Algebraic Thinking	
Cluster: Represent and solve problems involving addition and subtraction.	
KY.1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions.	**SE:** 3, 4, 5–8, 9–12, 13–16, 17–20, 21–24, 25–28, 29–32, 33–36, 37–40, Reteaching: 43–46 Sets A–H; 55–56, 57–60, 61–64, 81–84, 85–88, Reteaching: 98 Set H; 107, 108, 113–116, 117–120, 121–124, 137–140, 141–144, Reteaching: 149–150 Sets F, G; 161–164, 189–192, 193–196, Reteaching: 202 Sets F, G; 211, 233–236, 261–264, 265–268, 269–272 **TE:** 3–3A, 4–4C, 5A–8B, 9A–12B, 13A–16B, 17A–20B, 21A–24B, 25A–28B, 29A–32B, 33A–36B, 37A–40B, Reteaching: 43–46 Sets A–H; 55–56A, 57A–60B, 61A–64B, 81A–84B, 85A–88B, Reteaching: 97–98 Set H; 107–107A, 108–108C, 113A–116B, 117A–120B, 121A–124B, 137A–140B, 141A–144B, Reteaching: 149–150 Sets F, G; 161A–164B, 189A–192B, 193A–196B, Reteaching: 201–202 Sets F, G; 211–211A, 233A–236B, 261A–264B, 265A–268B, 269A–272B
KY.1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, by using objects, drawings and equations with a symbol for the unknown number to represent the problem.	**SE:** 4, 211, 212, 225–228, 229–232, 252, 261–264, 569–572 **TE:** 4–4C, 211–211A, 212–212C, 225A–228B, 229A–232B, 251–252A, 261A–264B, 569A–572B
Cluster: Understand and apply properties of operations and the relationship between addition and subtraction.	
KY.1.OA.3 Apply properties of operations as strategies to add and subtract.	**SE:** 73–76, 89–92, Reteaching: 97 Set E; 108, 109–112, 141–144, 169–172, 211, 212, 225–228, 229–232, Reteaching: 244 Set C **TE:** 73A–76B, 89A–92B, Reteaching: 97–98 Set E; 108–108C, 109A–112B, 141A–144B, 169A–172B, 211–211A, 212–212C, 225A–228B, 229A–232B, Reteaching: 244 Set C

Kentucky Academic Standards Mathematics 2019 Grade 1	enVision, ©2020 Grade 1
KY.1.OA.4 Understand subtraction as an unknown-addend problem.	**SE:** 4, 29–32, 33–36, 81–84, Reteaching: 98 Set G; 108, 159–160, 173–176, 177–180, 181–184, 185–188, Reteaching: 200–201 Sets C–E **TE:** 4–4C, 29A–32B, 33A–36B, 81A–84B, Reteaching: 97–98 Set G; 108–108C, 159–160A, 173A–176B, 177A–180B, 181A–184B, 185A–188B, Reteaching: 199–202 Sets C–E
Cluster: Add and subtract within 20.	
KY.1.OA.5 Relate counting to addition and subtraction.	**SE:** 57–60, 61–64, 65–68, 77–80, Reteaching: 95–97 Sets A, C, F; 107, 108, 109–112, 113–116, 117–120, 121–124, Reteaching: 147 Sets A, B; 159–160, 161–164, 185–188, Reteaching: 199, 201 Sets A, E; 211, 213–216, 217–220, 221–224, 251–252, 253–256, 257–260, 533–536, 537–540 **TE:** 57A–60B, 61A–64B, 65A–68B, 77A–80B, Reteaching: 95–98 Sets A, C, F; 107–107A, 108–108C, 109A–112B, 113A–116B, 117A–120B, 121A–124B, Reteaching: 147-148 Sets A, B; 159–160A, 161A–164B, 185A–188B, Reteaching: 199-202 Sets A, E; 211–211A, 213A–216B, 217A–220B, 221A–224B, 251–252A, 253A–256B, 257A–260B, 533A–536B, 537A–540B
KY.1.OA.6 Add and subtract within 20.	**SE:** 55-56, 57–60, 61–64, 65–68, 69-72, 77–80, 81-84, 85-88, 89-92, Reteaching: 95–96 Sets B, D; 107, 108, 117–120, 121–124, 125-128, 129-132, 133-136, 137-140, 141-144, Reteaching: 148-149 Sets C-E; 159–160, 165-168, 169-172, 173-176, 177-180, 181-184, 185–188, Reteaching: 200-201 Sets B, E; 211, 213–216, 251–252

Kentucky Academic Standards Mathematics 2019 Grade 1	**enVision, ©2020 Grade 1**
(Continued) KY.1.OA.6 Add and subtract within 20.	**TE:** 55–56A, 57A–60B, 61A–64B, 65A–68B, 69A–72B, 77A–80B, 81A–84B, 85A–88B, 89A–92B, Reteaching: 95–96 Sets B, D; 107–107A, 108–108C, 117A–120B, 121A–124B, 125A–128B, 129A–132B, 133A–136B,137A–140B, 141A–144B, Reteaching: 147–150 Sets C-E; 159–160A, 165A–168B, 169A–172B, 173A–176B, 177A–180B, 181A–184B, 185A–188B, Reteaching: 199–202 Sets B, E; 211–211A, 213A–216B, 251–252A
a. Fluently add and subtract within 10.	**SE:** 55-56, 57–60, 61–64, 65–68, 69-72, 73-76, 77–80, 81-84, 85-88, 89-92, Reteaching: 95–96 Sets A-G **TE:** 55–56A, 57A–60B, 61A–64B, 65A–68B, 69A–72B, 73A-76B, 77A–80B, 81A–84B, 85A–88B, 89A–92B, Reteaching: 95–96 Sets A-G
b. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making tens; decomposing a number leading to a 10; using the relationship between addition and subtraction; creating equivalent but easier or known sums.	**SE:** 55-56, 57–60, 61–64, 65–68, 69-72, 77–80, 81-84, 85-88, 89-92, Reteaching: 95–96 Sets B, D; 107, 108, 117–120, 121–124, 125-128, 129-132, 133-136, 137-140, 141-144, Reteaching: 148-149 Sets C-E; 159–160, 165-168, 169-172, 173-176, 177-180, 181-184, 185–188, Reteaching: 200-201 Sets B, E; 211, 213–216, 251–252 **TE:** 55–56A, 57A–60B, 61A–64B, 65A–68B, 69A–72B, 77A–80B, 81A–84B, 85A–88B, 89A–92B, Reteaching: 95–96 Sets B, D; 107–107A, 108–108C, 117A–120B, 121A–124B, 125A–128B, 129A–132B, 133A–136B,137A–140B, 141A–144B, Reteaching: 147–150 Sets C-E; 159–160A, 165A–168B, 169A–172B, 173A–176B, 177A–180B, 181A–184B, 185A–188B, Reteaching: 199–202 Sets B, E; 211–211A, 213A–216B, 251–252A

Kentucky Academic Standards Mathematics 2019 Grade 1	enVision, ©2020 Grade 1
Cluster: Work with addition and subtraction equations.	
KY.1.OA.7 Understand the meaning of the equal sign and determine if equations involving addition and subtraction are true or false.	**SE:** 4, 5–8, 9–12, 13–16, 17–20, 211, 212, 217–220, 221–224, 237–240, Reteaching: 243–244 Sets A, D **TE:** 4–4C, 5A–8B, 9A–12B, 13A–16B, 17A–20B, 211–211A, 212–212C, 217A–220B, 221A–224B, 237A–240B, Reteaching: 243–244 Sets A, D
KY.1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.	**SE:** 211, 212, 213–216, 221–224, 237–240, Reteaching: 243 Set B **TE:** 211–211A, 212–212C, 213A–216B, 221A–224B, 237A–240B, Reteaching: 243 Set B
Number and Operations in Base Ten	
Cluster: Extend the counting sequence.	
KY.1.NBT.1 Count and represent numbers.	**SE:** 283, 284, 289–292, 293–296, 297–300, 301–304, 305–308, 309–312, Reteaching: 315–316 Sets B–D; 329–332, 333–336, 337–340, 373–376, 521–524, 525–528, 537–540, 565–568, 577–580, 585–588 **TE:** 283–283A, 284–284C, 289A–292B, 293A–296B, 297A–300B, 301A–304B, 305A–308B, 309A–312B, Reteaching: 315–316 Sets B–D; 329A–332B, 333A–336B, 337A–340B, 373A–376B, 521A–524B, 525A–528B, 537A–540B, 565A–568B, 577A–580B, 585A–588B
a. Count forward to and backward from 120, starting at any number less than 120.	**MDIS:** A14, A15 **SE:** 283, 284, 289–292, 293–296, 297–300, 301–304, 305–308, 309–312, Reteaching: 315–316 Sets B–D; 329–332, 333–336, 337–340, 373–376, 521–524, 525–528, 537–540, 565–568, 577–580, 585–588

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(Continued) a. Count forward to and backward from 120, starting at any number less than 120.	**TE:** 283–283A, 284–284C, 289A–292B, 293A–296B, 297A–300B, 301A–304B, 305A–308B, 309A–312B, Reteaching: 315–316 Sets B–D; 329A–332B, 333A–336B, 337A–340B, 373A–376B, 521A–524B, 525A–528B, 537A–540B, 565A–568B, 577A–580B, 585A–588B
b. In this range, read and write numerals and represent a number of objects with a written numeral.	**SE:** 305–308, 309–312, Reteaching: 315–316 Sets B–D; 329–332, 333–336, 337–340, 373–376 **TE:** 305A–308B, 309A–312B, Reteaching: 315–316 Sets B–D; 329A–332B, 333A–336B, 337A–340B, 373A–376B
Cluster: Understand place value.	
KY.1.NBT.2 Understand that the two-digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:	**SE:** 323–324, 333–336, 337–340, 341–344, 345–348, 349–352, Reteaching: 355–356 Sets A–C; 364, 409–412, 413–416, 417–420, 457–460, 465–468, 469–472, 521–524, 525–528, 529–532, 533–536, 537–540 **TE:** 323–324A, 333A–336B, 337A–340B, 341A–344B, 345A–348B, 349A–352B, Reteaching: 355–356 Sets A–C; 364–364C, 409A–412B, 413A–416B, 417A–420B, 457A–460B, 465A–468B, 469A–472B, 521A–524B, 525A–528B, 529A–532B, 533A–536B, 537A–540B
a. 10 can be thought of as a bundle of ten ones — called a “ten.”	**SE:** 284, 285–288, 305–308, 309–312, 323–324, 325–328, 329–332, Reteaching: 355 Set A; 405–408, 421–424, 425–428, 433–436, 573–576 **TE:** 284–284C, 285A–288B, 305A–308B, 309A–312B, 323–324A, 325A–328B, 329A–332B, Reteaching: 355 Set A; 405A–408B, 421A–424B, 425A–428B, 433A–436B, 573A–576B
b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	**SE:** 325–328, Reteaching: 355 Set A **TE:** 325A–328B, Reteaching: 355 Set A

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c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	**SE:** 283, 284, 285–288, 297–300, 305–308, Reteaching: 315 Set A; 329–332, 401–404, 451, 453–456, 461–464, 573–576 **TE:** 283–283A, 284–284C, 285A–288B, 297A–300B, 305A–308B, Reteaching: 315 Set A; 329A–332B, 401A–404B, 451–451A, 453A–456B, 461A–464B, 573A–576B
KY.1.NBT.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	**SE:** 363, 364, 365–368, 369–372, 373–376, 377–380, 381–384, 385–388, Reteaching: 392 Sets C, D **TE:** 363–363A, 364–364C, 365A–368B, 369A–372B, 373A–376B, 377A–380B, 381A–384B, 385A–388B, Reteaching: 392 Sets C, D
Cluster: Use place value understanding and properties of operations to add and subtract.	
KY.1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number. Add a two-digit number and a multiple of 10.	**SE:** 399–400, 401–404, 409–412, 413–416, 417–420, 421–424, 425–428, 429–432, 433–436, Reteaching: 439–442 Sets A, C–H; 452 **TE:** 399–400A, 401A–404B, 409A–412B, 413A–416B, 417A–420B, 421A–424B, 425A–428B, 429A–432B, 433A–436B, Reteaching: 439–442 Sets A, C–H; 452–452C
a. Add within 100 using… • concrete models or drawings; • strategies based on place value; • properties of operations; • the relationship between addition and subtraction.	**SE:** 399–400, 401–404, 409–412, 413–416, 417–420, 421–424, 425–428, 429–432, 433–436, Reteaching: 439–442 Sets A, C–H; 452 **TE:** 399–400A, 401A–404B, 409A–412B, 413A–416B, 417A–420B, 421A–424B, 425A–428B, 429A–432B, 433A–436B, Reteaching: 439–442 Sets A, C–H; 452–452C

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b. Relate the addition strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	**SE:** 399–400, 401–404, 409–412, 413–416, 417–420, 421–424, 425–428, 429–432, 433–436, Reteaching: 439–442 Sets A, C–H; 452 **TE:** 399–400A, 401A–404B, 409A–412B, 413A–416B, 417A–420B, 421A–424B, 425A–428B, 429A–432B, 433A–436B, Reteaching: 439–442 Sets A, C–H; 452–452C
KY.1.NBT.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	**SE:** 363, 365–368, 369–372, Reteaching: 391 Sets A, B; 399–400, 405–408, 429–432, Reteaching: 439 Set B; 452, 453–456, 457–460, 461–464, 469–472, 473–476, 477–480, Reteaching: 484 Set C **TE:** 363–363A, 365A–368B, 369A–372B, Reteaching: 391 Sets A, B; 399–400A, 405A–408B, 429A–432B, Reteaching: 439–440 Set B; 452–452C, 453A–456B, 457A–460B, 461A–464B, 469A–472B, 473A–476B, 477A–480B, Reteaching: 484 Set C
KY.1.NBT.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences).	**SE:** 451, 452, 453–456, 457–460, 461–464, 465–468, 473–476, 477–480, Reteaching: 483–484 Sets A, B, D **TE:** 451–451A, 452–452C, 453A–456B, 457A–460B, 461A–464B, 465A–468B, 473A–476B, 477A–480B, Reteaching: 483–484 Sets A, B, D
a. Subtract using: • concrete models or drawings; • strategies based on place value; • properties of operations; • the relationship between addition and subtraction	**SE:** 451, 452, 453–456, 457–460, 461–464, 465–468, 473–476, 477–480, Reteaching: 483–484 Sets A, B, D **TE:** 451–451A, 452–452C, 453A–456B, 457A–460B, 461A–464B, 465A–468B, 473A–476B, 477A–480B, Reteaching: 483–484 Sets A, B, D

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b. Relate the subtraction strategy to a written method and explain the reasoning used.	**SE:** 451, 452, 453–456, 457–460, 461–464, 465–468, 473–476, 477–480, Reteaching: 483–484 Sets A, B, D **TE:** 451–451A, 452–452C, 453A–456B, 457A–460B, 461A–464B, 465A–468B, 473A–476B, 477A–480B, Reteaching: 483–484 Sets A, B, D
Measurement and Data	
Cluster: Measure lengths indirectly and by iterating length units.	
KY.1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.	**SE:** 491–492, 493–496, 497–500, 505–508, Reteaching: 511 Sets A, B **TE:** 491–492A, 493A–496B, 497A–500B, 505A–508B, Reteaching: 511 Sets A, B
KY.1.MD.2 Express the length of an object as a whole number of same-size length units, by laying multiple copies of a shorter object (the length unit) end to end with no gap or overlaps.	**SE:** 491–492, 501–504, 505–508, Reteaching: 512 Sets C, D; 557–560, 561–564, 581–584 **TE:** 491–492A, 501A–504B, 505A–508B, Reteaching: 512 Sets C, D; 557A–560B, 561A–564B, 581A–584B
Cluster: Work with time and money.	
KY.1.MD.3 Assign values to time and money.	**SE:** 519, 520, 521-524, 525-528, 529–532, 533–536, 537–540, 541–544, Reteaching: 547–548 Sets A–D **TE:** 519-519A, 520–520C, 521A-524B, 525A-528B, 529A–532B, 533A–536B, 537A–540B, 541A–544B, Reteaching: 547–548 Sets A–D
a. Tell and write time in hours and half-hours using analog and digital clocks.	**SE:** 520, 529–532, 533–536, 537–540, 541–544, Reteaching: 547–548 Sets B–D **TE:** 520–520C, 529A–532B, 533A–536B, 537A–540B, 541A–544B, Reteaching: 547–548 Sets B–D

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b. Identify the coins by value (penny, nickel, dime, quarter).	**SE:** 519, 521-524, 525-528, Reteaching: 547 Set A **TE:** 519-519A, 521A-524B, 525A-528B, Reteaching: 547 Set A
Cluster: Understand and apply the statistics process.	
KY.1.MD.4 Investigate questions involving categorical data.	**SE:** 251–252, 253–256, 257–260, 261–264, 265–268, 269–272, Reteaching: 275–276 Sets A, B; 364, 520 **TE:** 251–252A, 253A–256B, 257A–260B, 261A–264B, 265A–268B, 269A–272B, Reteaching: 275–276 Sets A, B; 364–364C, 520–520C
a. Pose a question that can be answered by gathering data.	**SE:** 251–252,257–260, 520 **TE:** 251–252A, 257A–260B, 520–520C
b. Determine strategy for gathering data from peers.	**SE:** 251–252, 257–260, 261–264, 269–272, 520 **TE:** 251–252A, 257A–260B, 261A–264B, 269A–272B, 520–520C
c. Organize and represent data in a table/chart with up to three categories	**SE:** 251–252, 253–256, 257–260, 261–264, 265–268, 269–272, Reteaching: 275–276 Sets A, B; 364, 520 **TE:** 251–252A, 253A–256B, 257A–260B, 261A–264B, 265A–268B, 269A–272B, Reteaching: 275–276 Sets A, B; 364–364C, 520–520C
d. Interpret data to answer questions about the table/chart that connects to the question posed, including total number of data points, how many in each category and how many more or less are in one category than in another.	**SE:** 251–252, 257–260, 261–264, 265–268, 269–272, Reteaching: 275–276 Sets A, B; 520 **TE:** 251–252A, 257A–260B, 261A–264B, 265A–268B, 269A–272B, Reteaching: 275–276 Sets A, B; 520-520C

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Kentucky Academic Standards Mathematics 2019 Grade 1	enVision, ©2020 Grade 1
Geometry	
Cluster: Reason with shapes and their attributes.	
KY.1.G.1 Distinguish between defining attributes versus non-defining attributes; build and draw shapes to possess defining attributes.	**SE:** 555–556, 557–560, 561–564, 565–568, 577–580, 581–584, 589–592, Reteaching: 595–598 Sets A, B, E, G, H; 608 **TE:** 555–556A, 557A–560B, 561A–564B, 565A–568B, 577A–580B, 581A–584B, 589A–592B, Reteaching: 595–598 Sets A, B, E, G, H; 608–608C
KY.1.MD.2. Compose shapes.	**SE:** 555–556, 569–572, 573–576, 585–588, 589–592, Reteaching: 596–597 Sets C, D, F, H; 608 **TE:** 555–556A, 569–572B, 573–576B, 585A–588B, 589A–592B, Reteaching: 595–598 Sets C, D, F, H; 608–608C
a. Compose two-dimensional shapes to create rectangles, squares, trapezoids, triangles, half-circles, quarter-circles and composite shapes to compose new shapes from the composite shape.	**SE:** 555–556, 569–572, 573–576, 585–588, 589–592, Reteaching: 596–597 Sets C, D, F, H; 608 **TE:** 555–556A, 569–572B, 573–576B, 585A–588B, 589A–592B, Reteaching: 595–598 Sets C, D, F, H; 608–608C
b. Use three-dimensional shapes (cubes, right rectangular prisms, right circular cones and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	**SE:** 585–588, Reteaching: 596–597 Set F **TE:** 585A–588B, Reteaching: 595–598 Set F
KY.1.MD.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths* and *quarters*, and use the phrases *half of*, *fourth of* and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	**SE:** 607, 608, 609–612, 613–616, 617–620, 621–624, Reteaching: 627–628 Sets A–D **TE:** 607–607A, 608–608C, 609A–612B, 613A–616B, 617A–620B, 621A–624B, Reteaching: 627–628 Sets A–D

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Kentucky Academic Standards Mathematics 2019 Grade 2	enVision, ©2020 Grade 2
Mathematical Practices	
1. Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages at SavvasRealize.com, along with the Math Practices Posters, and supporting Math Practices Animations. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **Student's Edition and Teacher's Edition pages** 13–16, 21–24, 37–40, 41–44, 69–72, 77–80, 113–116, 117–120, 141–144, 149–152, 165–168, 169–172, 193–196, 197–200, 205–208

Kentucky Academic Standards Mathematics 2019 Grade 2	enVision, ©2020 Grade 2
2. Reason abstractly and quantitatively.	enVision Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **Student's Edition and Teacher's Edition pages** 5–8, 13–16, 17–20, 21–24, 25–28, 33–36, 37–40, 41–44, 73–76, 97–100, 105–108, 109–112, 149–152, 153–156, 157–160
3. Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program specifically call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own processes and those of others. **Student's Edition and Teacher's Edition pages** 29–32, 41–44, 69–72, 77–80, 93–96, 105–108, 117–120, 137–140, 141–144, 149–152, 157–160, 169–172, 189–192, 201–204, 217–220

Kentucky Academic Standards Mathematics 2019 Grade 2	**enVision, ©2020 Grade 2**
4. Model with mathematics.	Students using enVision Mathematics are introduced to mathematical modeling in the early grades. They first use manipulatives and drawings and then equations to model addition and subtraction situations. The Visual Learning Bridge and Visual Learning Animation Plus often present real-world situations, and students are shown how these can be modeled mathematically. In later grades, students expand their modeling skills to include representations such as tables and graphs, as well as equations. **Student's Edition and Teacher's Edition pages** 5–8, 9–12, 21–24, 29–32, 33–36, 41–44, 61–64, 65–68, 73–76, 77–80, 101–104, 109–112, 137–140, 141–144, 145–148
5. Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, rulers, protractors, and even pencil and paper, to digital tools, such as Online Math Tools and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **Student's Edition and Teacher's Edition pages** 29–32, 73–76, 93–96, 97–100, 117–120, 137–140, 189–192, 193–196, 209–212, 237–240, 245–248, 261–264, 305–308, 349–352, 377–380

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6. Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms and concepts are highlighted in each lesson. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **Student's Edition and Teacher's Edition pages** 9–12, 37–40, 61–64, 77–80, 113–116, 197–200, 201–204, 253–256, 261–264, 301–304, 333–336, 341–344, 349–352, 353–356, 357–360
7. Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. As students mature in their mathematical thinking, they look for structure in numerical operations by focusing on place value and properties of operations. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **Student's Edition and Teacher's Edition pages** 9–12, 13–16, 17–20, 25–28, 61–64, 65–68, 69–72, 77–80, 101–104, 145–148, 153–156, 161–164, 189–192, 201–204, 217–220

Kentucky Academic Standards Mathematics 2019 Grade 2	**enVision, ©2020 Grade 2**
8. Look for and express regularity in repeated reasoning	Students are prompted to look for repetition in computations to help them develop shortcuts and become more efficient problem solvers. Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. The Problem-Based Learning activities offer students opportunities to look for regularity in the way operations behave. **Student's Edition and Teacher's Edition pages** 5–8, 17–20, 25–28, 33–36, 65–68, 77–80, 105–108, 153–156, 157–160, 165–168, 205–208, 281–284, 345–348, 353–356, 357–360

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Kentucky Academic Standards Mathematics 2019 Grade 2	enVision, ©2020 Grade 2
Operations and Algebraic Thinking	
Cluster: Represent and solve problems involving addition and subtraction.	
KY.2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, by using drawings and equations with a symbol for the unknown number to represent the problem. .	**SE:** 4, 37-40, 41-44, Reteaching: 50 Sets G, H; 77–80, Reteaching: 84 Set D; 92, 113–116, 117–120, Reteaching: 123–125 Sets A-F; 136, 141-144,145–148, 165–168, 169-172, Reteaching: 175-178 Sets B, C, G, H; 187, 188, 213–216, 217–220, Reteaching: 226 Sets G, H; 236, 245–248, 257–260, 261-264, Reteaching: 268-269 Sets C, F; 279, 280, 281-284, 285-288, 289-292, 293–296, 297–300, 309-312, Reteaching: 315-318 Sets A-C, H; 341–344, 345–348, Reteaching: 364–365 Sets B, C; 609–612, 613–616, 617-620, 621-624, 625–628, Reteaching: 631-632 Sets A-D; 649-652, 653-656, 657-660, 661-664, Reteaching: 668, 670 Sets B, D **TE:** 4–4C, 37A–40B, 41A–44B, Reteaching: 49–50 Sets G, H; 77A–80B, Reteaching: 84 Set D; 92–92C, 113A–116B, 117A–120B, Reteaching: 123–126 Sets A-F; 136–136A, 141A–144B, 145A–148B, 165A–168B, 169A–172B, Reteaching: 175-178 Sets B, C, G, H; 187–187A, 188–188C, 213A–216B, 217A–220B, Reteaching: 225-226 Sets G, H; 236-236A, 245A–248B, 257A–260B, 261A–264B, Reteaching: 267-270 Sets C, F; 279-279A, 280–280C, 281A–284B, 285A–288B, 289A–292B, 293A–296B, 297A–300B, 309A–312B,Reteaching: 315-318 Sets A-C, H; 341A–344B, 345A–348B, Reteaching: 363–366 Sets B, C; 609A–612B, 613A–616B, 617A–620B, 621A–624B, 625A–628B, Reteaching: 631-632 Sets A-D; 649A-652B, 653A-656B, 657A–660B, 661A–664B, Reteaching: 667–670 Sets B, D

Kentucky Academic Standards Mathematics 2019 Grade 2	**enVision, ©2020 Grade 2**
Cluster: Add and subtract within 20.	
KY.2.OA.2 Fluently add and subtract within 20 using mental strategies.	**SE:** 3, 4, 5–8, 9–12, 13–16, 17–20, 21–24, 25–28, 29–32, 33–36, 37–40, 41–44, Reteaching: 47–50 Sets A–H; 60, 61–64, 65–68, 69–72, 73–76, 77–80, Reteaching: 83–84 Sets A–D; 91, 301–304, Reteaching: 317 Set F; 561–564, Reteaching: 595 Set A **TE:** 3–3A, 4–4C, 5A–8B, 9A–12B, 13A–16B, 17A–20B, 21A–24B, 25A–28B, 29A–32B, 33A–36B, 37A–40B, 41A–44B, Reteaching: 47–50 Sets A–H; 60–60A, 61A–64B, 65A–68B, 69A–72B, 73A–76B, 77A–80B, Reteaching: 83–84 Sets A–D; 91–91A, 301A–304B, Reteaching: 317–318 Set F; 561A–564B, Reteaching: 595–596 Set A
Cluster: Work with equal groups of objects to gain foundations for multiplication.	
KY.2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members; write an equation to express an even number as a sum of two equal addends.	**SE:** 60, 61–64, 65–68, Reteaching: 83 Set A **TE:** 60–60A, 61A–64B, 65A–68B, Reteaching: 83 Set A
KY.2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	**SE:** 69–72, 73–76, 77–80, Reteaching: 83–84 Sets B–D; 92, 136, 577–580, 585–588, 589–592, Reteaching: 597–598 Sets E, G, H **TE:** 69A–72B, 73A–76B, 77A–80B, Reteaching: 83–84 Sets B–D; 92–92C, 135–136A, 577A–580B, 585A–588B, 589A–592B, Reteaching: 597–598 Sets E, G, H

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Kentucky Academic Standards Mathematics 2019 Grade 2	enVision, ©2020 Grade 2
Number and Operations in Base Ten	
Cluster: Understand place value.	
KY.2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones. Understand the following as special cases:	**SE:** 376, 381–384, 385–388, 389–392, 405–408, 409–412, Reteaching: 419–422 Sets B, C, G **TE:** 376–376C, 381A–384B, 385A–388B, 389A–392B, 405A–408B, 409A–412B, Reteaching: 419–422 Sets B, C, G
a. 100 can be thought of as a bundle of ten tens — called a "hundred."	**SE:** 377–380, 393–396, Reteaching: 419–420 Sets A, D **TE:** 377A–380B, 393A–396B, Reteaching: 419–420 Sets A, D
b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	**SE:** 377–380, 381–384, 385–388, Reteaching: 419 Set A **TE:** 377A–380B, 381A–384B, 385A–388B, Reteaching: 419–420 Set A
KY.2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.	**SE:** 329–332, 333–336, 337–340, 349–352, 353–356, 357–360, Reteaching: 363–366 Sets A, B, D–F; 375, 376, 397–400, 401–404, 413–416, Reteaching: 421–422 Sets E, F, H; 437–440, 477–480 **TE:** 329A–332B, 333A–336B, 337A–340B, 349A–352B, 353A–356B, 357A–360B, Reteaching: 363–366 Sets A, B, D–F; 375–375A, 376–376C, 397A–400B, 401A–404B, 413A–416B, Reteaching: 421–422 Sets E, F, H; 437A–440M, 477A–480B
KY.2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	**SE:** 376, 381–384, 385–388, 389–392, 393–396, Reteaching: 419–420 Sets B, C, D **TE:** 376–376C, 381A–384B, 385A–388B, 389A–392B, 393A–396B, Reteaching: 419–420 Sets B, C, D

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KY.2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	**SE:** 375, 405–408, 409–412, 413–416, Reteaching: 422 Sets G, H **TE:** 375–375A, 405A–408B, 409A–412B, 413A–416B, Reteaching: 421–422 Sets G, H
Cluster: Use place value understanding and properties of operations to add and subtract.	
KY.2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	**SE:** 92, 93–96, 97–100, 101–104, 105–108, 109–112, 113–116, 117–120, Reteaching: 123–125 Sets A–F; 136, 137–140, 141–144, 145–148, 149–152, 153–156, 157–160, 161–164, 165–168, 169–172, Reteaching: 175–178 Sets A–H; 187, 188, 189–192, 193–196, 197–200, 201–204, 205–208, 209–212, 213–216, 217–220, Reteaching: 223–226 Sets A–H; 236, 237–240, 241–244, 245–248, 249–252, 253–256, 257–260, Reteaching: 267–269 Sets A–F; 279, 280, 281–284, 285–288, 289–292, 293–296, 297–300, 305–308, Reteaching: 315–318 Sets A–D, G **TE:** 92–92C, 93A–96B, 97A–100B, 101A–104B, 105A–108B, 109A–112B, 113A–116B, 117A–120B, Reteaching: 123–126 Sets A–F; 136–136A, 137A–140B, 141A–144B, 145A–148B, 149A–152B, 153A–156B, 157A–160B, 161A–164B, 165A–168B, 169A–172B, Reteaching: 175–178 Sets A–H; 187–187A, 188–188C, 189A–192B, 193A–196B, 197A–200B, 201A–204B, 205A–208B, 209A–212B, 213A–216B, 217A–220B, Reteaching: 223–226 Sets A–H; 236–236A, 237A–240B, 241A–244B, 245A–248B, 249A–252B, 253A–256B, 257A–260B, Reteaching: 267–270 Sets A–F; 279–279A, 280–280C, 281A–284B, 285A–288B, 289A–292B, 293A–296B, 297A–300B, 305A–308B, Reteaching: 315–318 Sets A–D, G

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KY.2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	**SE:** Reteaching: 124–125 Sets D, E; 136, 157–160, 161–164, 165–168, 169–172, Reteaching: 177–178 Sets F–H; 279; Reteaching: 318 Set G **TE:** Reteaching: 124–125 Sets D, E; 136–136A, 157A–160B, 161A–164B, 165A–168B, 169A–172B, Reteaching: 177–178 Sets F–H; 279–279A, Reteaching: 317–318 Set G
KY.2.NBT.7 Add and subtract within 1000.	**SE:** 432, 437–440, 441–444, 445–448, 449–452, 453–456, 457–460, Reteaching: 463–464 Sets B–D; 472, 477–480, 481–484, 485–488, 489–492, 493–496, Reteaching: 499–500 Sets B–D **TE:** 432–432A, 437–440B, 441–444B, 445–448B, 449–452B, 453–456B, 457–460B, Reteaching: 463–464 Sets B–D; 472–472C, 477–480B, 481–484B, 485–488B, 489A–492B, 493A–496B, Reteaching: 499–500 Sets B–D
a. Represent and solve addition and subtraction problems using… • concrete models or drawings; • strategies based on place value; • properties of operations; • the relationship between addition and subtraction and; • relate drawings and strategies to expressions or equations.	**SE:** 432, 437–440, 441–444, 445–448, 449–452, 453–456, 457–460, Reteaching: 463–464 Sets B–D; 472, 477–480, 481–484, 485–488, 489–492, 493–496, Reteaching: 499–500 Sets B–D **TE:** 432–432A, 437–440B, 441–444B, 445–448B, 449–452B, 453–456B, 457–460B, Reteaching: 463–464 Sets B–D; 472–472C, 477–480B, 481–484B, 485–488B, 489A–492B, 493A–496B, Reteaching: 499–500 Sets B–D
b. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	**SE:** 437–440, 441–444, 445–448, 449–452, 453–456, 457–460, Reteaching: 463–464 Sets B–D; 472, 477–480, 481–484, 485–488, 489–492, 493–496, Reteaching: 499–200 Sets B–D **TE:** 437–440B, 441–444B, 445–448B, 449–452B, 453–456B, 457–460B, Reteaching: 463–464 Sets B–D; 472–472C, 477–480B, 481–484B, 485–488B, 489A–492B, 493A–496B, Reteaching: 499–200 Sets B–D

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KY.2.NBT.8 Mentally add 10 or 100 to a given number 100–900 and mentally subtract 10 or 100 from a given number 100–900.	**SE:** 376, 397–400, 401–404, 413–416, Reteaching: 421–422 Sets E, F, H; 433–436, Reteaching: 463 Set A; 473–476, Reteaching: 499 Set A **TE:** 376–376C, 397A–400B, 401A–404B, 413A–416B, Reteaching: 421–422 Sets E, F, H; 433A–436B, Reteaching: 463 Set A; 473A–476B, Reteaching: 499 Set A
KY.2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.	**SE:** 92, 93–96, 97–100, 101–104, 109–112, 117–120, Reteaching: 123–125 Sets A–F; 137–140, 141–144, 145–148, 149–152, 153–156, 157–160, 161–164, 169–172, Reteaching: 175–178 Sets A–H; 187, 188, 189–192, 193–196, 197–200, 201–204, 205–208, 209–212, 217–220, Reteaching: 223–226 Sets A–F, H; 237–240, 241–244, 245–248, 249–252, 253–256, 261–264, Reteaching: 267–269 Sets A–F; 309–312, Reteaching: 318 Set H; 433–436, 437–440, 441–444, 445–448, 449–452, 453–456, 457–460, Reteaching: 463–464 Sets A–D; 472, 473–476, 477–480, 481–484, 485–488, 489–492, 493–496, Reteaching: 499–500 Sets A, B, C **TE:** 92–92C, 93A–96B, 97A–100B, 101A–104B, 109A–112B, 117A–120B, Reteaching: 123–126 Sets A–F; 137A–140B, 141A–144B, 145A–148B, 149A–152B, 153A–156B, 157A–160B, 161A–164B, 169A–172B, Reteaching: 175–178 Sets A–H; 187–187A, 188–188C, 189A–192B, 193A–196B, 197A–200B, 201A–204B, 205A–208B, 209A–212B, 217A–220B, Reteaching: 223–226 Sets A–F, H; 237A–240B, 241A–244B, 245A–248B, 249A–252B, 253A–256B, 261A–264B, Reteaching: 267–270 Sets A–F; 309A–312B, Reteaching: 317–318 Set H; 433A–436B, 437A–440B, 441A–444B, 445A–448B, 449A–452B, 453A–456B, 457A–460B, Reteaching: 463–464 Sets A–D; 472–472C, 473A–476B, 477A–480B, 481A–484B, 485A–488B, 489A–492B, 493A–496B, Reteaching: 499–500 Sets A, B, C

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Measurement and Data	
Cluster: Measure and estimate lengths in standard units.	
KY.2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks and measuring tapes.	**SE:** 513–516, 517–520, 521–524, 525–528, 529–532, 533–536, 541–544, Reteaching: 547–550 Sets B–F, H; 560, 565–568, 569–572, 573–576, Reteaching: 595–596 Sets B–D; 641–644, 645–648, Reteaching: 667 Set A **TE:** 513A–516B, 517A–520B, 521A–524B, 525A–528B, 529A–532B, 533A–536B, 541A–544B, Reteaching: 547–550 Sets B–F, H; 560–560C, 565A–568B, 569A–572B, 573A–576B, Reteaching: 595–596 Sets B–D; 641A–644B, 645A–648B, Reteaching: 667–668 Set A
KY.2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	**SE:** 521–524, 533–536, Reteaching: 548–549 Sets C, F; 581–584, Reteaching: 597 Set F **TE:** 521A–524B, 533A–536B, Reteaching: 548–549 Sets C, F; 581A–584B, Reteaching: 597–598 Set F
KY.2.MD.3 Estimate lengths using units of inches, feet, yards, centimeters and meters.	**SE:** 509–512, 513–516, 517–520, 525–528, 529–532, 541–544, Reteaching: 547–550 Sets A, B, D, E, H **TE:** 509A–512B, 513A–516B, 517A–520B, 525A–528B, 529A–532B, 541A–544B, Reteaching: 547–550 Sets A, B, D, E, H
KY.2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a customary or metric standard length unit.	**SE:** 537–540, 541–544, Reteaching: 550 Sets G, H; 560 **TE:** 537A–540B, 541A–544B, Reteaching: 549–550 Sets G, H; 560–560C

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Cluster: Relate addition and subtraction to length.	
KY.2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units by using drawings and equations with a symbol for the unknown number to represent the problem.	**SE:** 537–560, Reteaching: 549–550 Sets F, G; 560, 609–612, 613–616, 617–620, 625–628, Reteaching: 631–632 Sets A–D **TE:** 537A–540B, Reteaching: 549–550 Sets F, G; 560–560C, 609A–612B, 613A–616B, 617A–620B, 625A–628B, Reteaching: 631–632 Sets A–D
KY.2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, … and represent whole-number sums and differences within 100 on a number line diagram.	**SE:** 621–624, 625–628, Reteaching: 632 Sets C–D **TE:** 621A–624B, 625A–628B, Reteaching: 632 Sets C–D
Cluster: Work with time and money.	
KY.2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	**SE:** 328, 349–352, 353–356, 357–360, Reteaching: 365–366 Sets D–F **TE:** 328–328A, 349A–352B, 353A–356B, 357A–360B, Reteaching: 365–366 Sets D–F
KY.2.MD.8 Solve word problems with adding and subtracting within 100, (not using dollars and cents simultaneously) using the $ and ¢ symbols appropriately (not including decimal notation).	**SE:** 329–332, 333–336, 337–340, 341–344, 345–348, 376, 433–436, 473–476, 485–488 **TE:** 329A–332B, 333A–336B, 337A–340B, 341A–344B, 345A–348B, 376–376C, 433A–436B, 473A–476B, 485A–488B
Cluster: Understand and apply the statistics process.	
KY.2.MD.9 Investigate questions involving measurements.	**SE:** 640, 641–644, 645–648, Reteaching: 667 Set A **TE:** 640–640C, 641A–644B, 645A–648B, Reteaching: 667–668 Set A
a. Identify a statistical question focused on measurements.	**SE:** 640 **TE:** 640–640C

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b. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object.	**SE:** 640, 641–644, 645–648, Reteaching: 667 Set A **TE:** 640–640C, 641A–644B, 645A–648B, Reteaching: 667–668 Set A
c. Show the measurements by making a dot plot, where the horizontal scale is marked off in whole-number units.	**SE:** 641–644, 645–648, Reteaching: 667 Set A **TE:** 641A–644B, 645A–648B, Reteaching: 667–668 Set A
KY.2.MD.10 Create a pictograph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart and compare problems using information presented in a bar graph.	**SE:** 640, 641–644, 645–648, 649–652, 653–656, 657–660, 661–664, Reteaching: 667–670 Sets A–D **TE:** 640–640C, 641A–644B, 645A–648B, 649A–652B, 653A–656B, 657A–660B, 661A–664B, Reteaching: 667–670 Sets A–D
Geometry	
Cluster: Reason with shapes and their attributes.	
KY.2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or sides. Identify triangles, quadrilaterals, pentagons, hexagons and cubes. (Identify number of faces).	**SE:** 560, 561–564, 565–568, 569–572, 573–576, Reteaching: 595–596 Sets A–D **TE:** 560–560C, 561A–564B, 565A–568B, 569A–572B, 573A–576B, Reteaching: 595–596 Sets A–D
KY.2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	**SE:** 577-580, 589-592, Reteaching: 597-598 Sets E, H **TE:** 577A-580B, 589A-592B, Reteaching: 597-598 Sets E, H
KY.2.G.3 Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc.; and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	**SE:** 581–584, 585–588, 589–592, Reteaching: 597–598 Sets F, G, H **TE:** 581A–584B, 585A–588B, 589A–592B, Reteaching: 597–598 Sets F, G, H

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Kentucky Academic Standards Mathematics 2019 Grade 3	enVision, ©2020 Grade 3
Mathematical Practices	
1. Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages at SavvasRealize.com, along with the Math Practices Posters, and supporting Math Practices Animations. Each lesson begins with Problem- Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **Student's Edition and Teacher's Edition pages** 5–8, 9–12, 17–20, 25–28, 41–44, 49–52, 61–64, 81–84, 89–92, 93–96, 97–100, 101–104, 117–120, 121–124, 125–128

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2. Reason abstractly and quantitatively.	enVision Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **Student's Edition and Teacher's Edition pages** 9–12, 21–24, 45–48, 53–56, 61–64, 93–96, 97–100, 117–120, 121–124, 125–128, 129–132, 133–136, 141–144, 145–148, 149–152
3. Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision® Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program specifically call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own processes and those of others. **Student's Edition and Teacher's Edition pages** 13–16, 25–28, 41–44, 45–48, 57–60, 61–64, 77–80, 101–104, 133–136, 141–144, 149–152, 173–176, 177–180, 189–192, 209–212

Kentucky Academic Standards Mathematics 2019 Grade 3	enVision, ©2020 Grade 3
4. Model with mathematics.	Students using enVision Mathematics are introduced to mathematical modeling in the early grades. They first use manipulatives and drawings and then equations to model addition and subtraction situations. The Visual Learning Bridge and Visual Learning Animation Plus often present real-world situations, and students are shown how these can be modeled mathematically. In later grades, students expand their modeling skills to include representations such as tables and graphs, as well as equations. **Student's Edition and Teacher's Edition pages** 5–8, 9–12, 17–20, 21–24, 25–28, 61–64, 85–88, 93–96, 125–128, 137–140, 141–144, 181–184, 189–192, 221–224, 225–228
5. Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, rulers, protractors, and even pencil and paper, to digital tools, such as Online Math Tools and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **Student's Edition and Teacher's Edition pages** 13–16, 25–28, 49–52, 57–60, 81–84, 117–120, 181–184, 209–212, 233–236, 257–260, 317–320, 341–344, 353–356, 357–360, 381–384

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6. Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms and concepts are highlighted in each lesson. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **Student's Edition and Teacher's Edition pages** 17–20, 49–52, 57–60, 77–80, 137–140, 145–148, 149–152, 169–172, 217–220, 233–236, 253–256, 61–264, 269–272, 305–308, 309–312
7. Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. As students mature in their mathematical thinking, they look for structure in numerical operations by focusing on place value and properties of operations. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **Student's Edition and Teacher's Edition pages** 13–16, 25–28, 41–44, 45–48, 53–56, 77–80, 81–84, 85–88, 89–92, 101–104, 121–124, 129–132, 137–140, 169–172, 177–180

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8. Look for and express regularity in repeated reasoning	Students are prompted to look for repetition in computations to help them develop shortcuts and become more efficient problem solvers. Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. The Problem-Based Learning activities offer students opportunities to look for regularity in the way operations behave. **Student's Edition and Teacher's Edition pages** 21–24, 53–56, 97–100, 101–104, 133–136, 145–148, 181–184, 185–188, 221–224, 225–228, 269–272, 293–296, 345–348, 353–356, 389–392
Operations and Algebraic Thinking	
Cluster: Represent and solve problems involving multiplication and division.	
KY.3.0A.1 Interpret and demonstrate products of whole numbers.	**SE:** 3, 4, 5–8, 9–12, 13–16, 25–28, Reteaching: 31–32 Sets A–C, E; 41–44, 45–48, 49–52, 53–56, 57–60, Reteaching: 67–68 Sets A–E; 185–188, Reteaching: 197–198 Set E **TE:** 3–3A, 4–4C, 5A–8B, 9A–12B, 13A–16B, 25A–28B, Reteaching: 31–32 Sets A–C, E; 41A–44B, 45A–48B, 49A–52B, 53A–56B, 57A–60B, Reteaching: 67–68 Sets A–E; 185A–188B, Reteaching: 197–198 Set E
KY.3.0A.2 Interpret and demonstrate whole-number quotients of whole numbers, where objects are partitioned into equal shares.	**SE:** 4, 17–20, 21–24, 25–28, Reteaching: 32 Sets D, E; 185–188, Reteaching: 197–198 Set E **TE:** 4–4C, 17A–20B, 21A–24B, 32, Reteaching: 25A–28B Sets D, E; 185A–188B, Reteaching: 197–198 Set E

Kentucky Academic Standards Mathematics 2019 Grade 3	**enVision, ©2020 Grade 3**
KY.3.0A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays and measurement quantities, by using drawings and equations with a symbol for the unknown number to represent the problem.	**SE:** 3, 4, 5–8, 9–12, 13–16, 17–20, 21–24, 25–28, Reteaching: 31–32 Sets A–E; 39–40, 41–44, 45–48, 49–52, 53–56, 57–60, 61–64, Reteaching: 67–68 Sets A–F; 76, 81–84, 85–88, 89–92, 93–96, 97–100, Reteaching: 107–108 Sets B–E; 117–120, 121–124, 125–128, 129–132, 133–136, 137–140, 141–144, 145–148, 149–152, Reteaching: 155–158 Sets A–I; 167, 168, 177–180, 181–184, 185–188, 189–192, Reteaching: 196–198 Sets C–F; 252, 253–256, 257–260, 261–264, 265–268, 269–272, Reteaching: 275–278 Sets A–D; 385–388, Reteaching: 399 Set B; 408, 561–564, Reteaching: 574 Set H; 617–620, Reteaching: 639 Set A **TE:** 3–3A, 4–4C, 5A–8B, 9A–12B, 13A–16B, 17A–20B, 21A–24B, 25A–28B, Reteaching: 31–32 Sets A–E; 39–40A, 41A–44B, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, Reteaching: 67–68 Sets A–F; 76–76C, 81A–84B, 85A–88B, 89A–92B, 93A–96B, 97A–100B, Reteaching: 107–108 Sets B–E; 117A–120B, 121A–124B, 125A–128B, 129A–132B, 133A–136B, 137A–140B, 141A–144B, 145A–148B, 149A–152B, Reteaching: 155–158 Sets A–I; 167–167A, 168–168C, 177A–180B, 181A–184B, 185A–188B, 189A–192B, 195–198, 252–252C, 253A–256B, 257A–260B, 261A–264B, 265A–268B, 269A–272B, Reteaching: 275–278 Sets A–D; 385A–388B, Reteaching: 399 Set B; 408–408C, 561A–564B, Reteaching: 573–574 Set H; 617A–620B, Reteaching: 639 Set A
KY.3.0A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	**SE:** 141–144, 145–148, Reteaching: Sets 157–158, G, H; 168, 221–224, Reteaching: 240 Set D **TE:** 141A–144B, 145A–148B, Reteaching: 157–158 Sets G, H; 168–168C, 221A–224B, Reteaching: 239–240 Set D

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Cluster: Understand properties of multiplication and the relationship between multiplication and division.	
KY.3.0A.5 Apply properties of operations as strategies to multiply and divide.	**SE:** 4, 13–16, Reteaching: 31–32 Set C; 49–52, Reteaching: 67 Set C; 75, 76, 77–80, 81–84, 85–88, 89–92, 93–96, 97–100, 101–104, Reteaching: 107–108 Sets A–F; 137–140, Reteaching: 157 Set F; 389–392, Reteaching: 400 Set C **TE:** 4-4C, 13A–16B, Reteaching: 31–32 Set C; 49A–52B, Reteaching: 67 Set C; 75–75A, 76–76C, 77A–80B, 81A–84B, 85A–88B, 89A–92B, 93A–96B, 97A–100B, 101A–104B, Reteaching: 107–108 Sets A–F; 137A–140B, Reteaching: 157–158 Set F; 389A–392B, Reteaching: 400 Set C
KY.3.0A.6 Understand division as an unknown-factor problem.	**SE:** 117–120, 121–124, 125–128, 129–132, 137–140, Reteaching: 155–157 Sets A–D, F, G **TE:** 117–120, 121–124, 125–128, 129–132, 137–140, 141–144, Reteaching: 155–157 Sets A–D, F, G
Cluster: Multiply and divide within 100.	
KY.3.0A.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and or properties of operations. (Continued)	**SE:** 49–52, Reteaching: 67 Set C; 76, 77–80, 81–84, 85–88, 89–92, 93–96, 97–100, Reteaching: 107–108 Sets A–E; 117–120, 121–124, 125–128, 129–132, 133–136, 137–140, 141–144, 145–148, Reteaching: 155-158 Sets A–H; 167, 168, 169–172, 173–176, 177–180, 181–184, 185–188, 189–192, Reteaching: 195-198 Sets A–F; 221–224, 225–228, 229–232, 233–236, Reteaching: 240–242 Sets D–G; 297–300, 313–316, Reteaching: 324–325,Sets C, G; 345–348, 349–352, Reteaching: 368–369 Sets C, D; 413–416, 417–420, 421–424, Reteaching: 427–428 Sets B–D; 561-564, Reteaching: 574 Set H;617–620, 625–628, 629–632, Reteaching: 639–640 Sets A, C

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KY.3.0A.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and or properties of operations.	**TE:** 49A–52B, Reteaching: 67 Set C; 76–76C, 77A–80B, 81A–84B, 85A–88B, 89A–92B, 93A–96B, 97A–100B, Reteaching: 107–108 Sets A–E; 117A–120B, 121A–124B, 125A–128B, 129A–132B, 133A–136B, 137A–140B, 141A–144B, 145A–148B, Reteaching: 155–158 Sets A–H; 167–167A, 168–168C, 169A–172B, 173A–176B, 177A–180B, 181A–184B, 185A–188B, 189A–192B, Reteaching: 195–198 Sets A–F; 221A–224B, 225A–228B, 229A–232B, 233A–236B, 239–242, 297A–300B, 313A–316B, Reteaching: 323–326 Sets C G; 345A–348B, 349A–352B, Reteaching: 367–370 Sets C, D; 413A–416B, 417A–420B, 421A–424B, Reteaching: 427–428 Sets B–D; 561A–564B, Reteaching: 573–574 Set H; 617A–620B, 625A–628B, 629A–632B, Reteaching: 639–640 Sets A, C
Cluster: Solve problems involving the four operations and identify and explain patterns in arithmetic.	
KY.3.0A.8 Use various strategies to solve two-step word problems using the four operations (Involving only whole numbers with whole number answers). Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**SE:** 149–152, Reteaching: 158 Set I; 168, 253–256, 265–268, Reteaching: 275–277 Sets A, C; 287– 288, 289–292, 297–300, 301–304, 305–308, 313–316, 317–320, Reteaching: 323–326 Sets A, C–E, G, H; 336, 337–340, 341–344, 345–348, 349–352, 353–356, 357–360, 361–364, Reteaching: 367–370 Sets A–G; 381-384, Reteaching: 399 Set A; 407, 408, 409–412, 413–416, 417–420, 421–424, Reteaching: 427–428 Sets A–D; 621–624, 639 **TE:** 149A–152B, Reteaching: 157–158 Set I; 168–168C, 253A–256B, 265A–268B, Reteaching: 275–278 Sets A, C; 287–288A, 289A–292B, 297A–300B, 301A–304B, 305A–308B, 313A–316B, 317A–320B, Reteaching: 323–326 Sets A, C–E, G, H; 336–336C, 337A–340B, 341A–344B, 345A–348B, 349A–352B, 353A–356B, 357A–360B, 361A–364B, Reteaching: 367–370 Sets A–G; 381A–384B, Reteaching: 399 Set A; 407–407A, 408–408C, 409A–412B, 413A–416B, 417A–420B, 421A–424B, Reteaching: 427–428 Sets A–D; 621A–624B, Reteaching: 639 Set B

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KY.3.0A.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations.	**SE:** 41–44, 45–48, 53–56, 57–60, Reteaching: 67–68 Sets A–E; 81–84, 85–88, 89–92, Reteaching: 107–108 Sets B–D; 133–136, Reteaching: 157 Set E; 169–172, 189–192, 195–198, 293–296, Reteaching: Set B; 393–396, Reteaching: 400 Set D **TE:** 41A–44B, 45A–48B, 53A–56B, 57A–60B, Reteaching: 67–68 Sets A–E; 81A–84B, 85A–88B, 89A–92B, Reteaching: 107–108 Sets B–D; 133A–136B, Reteaching: 157–158 Set E; 169A–172B, 189A–192B, Reteaching: 195–198 Sets A, F; 293A–296B, Reteaching: 323–324 Set B; 393A–396B, Reteaching: 400 Set D
Number and Operations in Base Ten	
Cluster: Use place value understanding and properties of operations to perform multi-digit arithmetic. Note: A range of algorithms may be used.	
KY.3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	**SE:** 287–288, 305–308, 309–312, Reteaching: 324–325 Sets E, F; 336 **TE:** 287–288A, 305A–308B, 309A–312B, Reteaching: 323–326 Sets E, F; 336–336C
KY.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction.	**SE:** 287–288, 289–292, 297–300, 301–304, 309–312, 313–316, 317–320, Reteaching: 323–326 Sets A, C, D, F–H; 335, 336, 337–340, 341–344, 345–348, 349–352, 353–356, 357–360, 361–364, Reteaching: 367–370 Sets A–G; 408, 409–412, 417–420, 421–424, Reteaching: 427–428 Sets A, C, D; 541–544, Reteaching: 572 Set C; 621–624, Reteaching: 639 Set B **TE:** 287–288A, 289A–292B, 297A–300B, 301A–304B, 309A–312B, 313A–316B, 317A–320B, Reteaching: 323–326 Sets A, C, D, F–H; 335–335A, 336–336C, 337A–340B, 341A–344B, 345A–348B, 349A–352B, 353A–356B, 357A–360B, 361A–364B, Reteaching: 367–370 Sets A–G; 408-408C, 409A–412B, 417A–420B, 421A–424B, Reteaching: 427–428 Sets A, C, D; 541A–544B, Reteaching: 572 Set C; 621A–624B, Reteaching: 639 Set B

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KY.3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value and properties of operations.	**SE:** 379–380, 381–384, 385–388, 389–392, 393–396, Reteaching: 399–400 Sets A–D **TE:** 379–380A, 381A–384B, 385A–388B, 389A–392B, 393A–396B, Reteaching: 399–400 Sets A–D
Number and Operations—Fractions	
Cluster: Develop understanding of fractions as numbers. Note: grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6 and 8.	
KY.3.NF.1 Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	**SE:** 435-436, 437–440, 441–444, 445–448, 465–468, Reteaching: 471–474 Sets A–C, H; 484, 485–488, 489–492, Reteaching: 519-522 Sets A-H; 585-588 **TE:** 435–436A, 437A–440B, 441A–444B, 445A–448B, 465A–468B, Reteaching: 471–474 Sets A–C, H; 484–484C, 485A–488B, 489A–492B, Reteaching: 519-522 Sets A-H; 585A-585B
KY.3.NF.2 Understand a fraction as a number on the number line; represent fractions on a number line.	**SE:** 435-436, 437–440, 441–444, 445–448, 465–468, Reteaching: 471–474 Sets A–C, H; 484, 485–488, 489–492, Reteaching: 519-522 Sets A-H **TE:** 435–436A, 437A–440B, 441A–444B, 445A–448B, 465A–468B, Reteaching: 471–474 Sets A–C, H; 484–484C, 485A–488B, 489A–492B, Reteaching: 519-522 Sets A-H
a. Represent a fraction 1/b (unit fraction) on a number line by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. • Recognize that each part has size 1/b. • a unit fraction, 1/b is located 1/b of a whole unit from 0 on the number line.	**SE:** 435–436, 449–452, 453–456, 457–460, 461–464, Reteaching: 472–474 Sets D–G **TE:** 435–436A, 449A–452B, 453A–456B, 457A–460B, 461A–464B, Reteaching: 471–474 Sets D–G
b. Represent a non-unit fraction a/b on a number line by marking off *a* lengths 1/b (unit fractions) from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the non-unit fraction a/b on the number line.	**SE:** 449–452, 453–456, 457–460, 461–464, Reteaching: 472–474 Sets D–G **TE:** 449A–452B, 453A–456B, 457A–460B, 461A–464B, Reteaching: 471–474 Sets D–G

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KY.3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	**SE:** 483, 484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, 509–512, 513–516, Reteaching: 519–522 Sets A-H **TE:** 483-483A, 484-484C, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, 509A–512B, 513A–516B, Reteaching: 519–522 Sets A-H
a. Understand two fractions as equivalent (equal) if they are the same size, or same point on a number line.	**SE:** 483, 484, 485–488, 489–492, 505–508, 509–512, Reteaching: 519–522 Sets A, B, F, G **TE:** 483-483A, 484-484C, 485A–488B, 489A–492B, 505A–508B, 509A–512B, Reteaching: 519–522 Sets A, B, F, G
b. Recognize and generate simple equivalent fractions. Explain why the fractions are equivalent through writing or drawing.	**SE:** 483, 485–488, 489–492, 513–516, Reteaching: 519–522 Sets A, B, H **TE:** 483–483A, 485A–488B, 489A–492B, 513A–516B, Reteaching: 519–522 Sets A, B, H
c. Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers.	**SE:** 445–448, Reteaching: 472 Set C; 484, 509–512, Reteaching: 522 Set G **TE:** 445A–448B, Reteaching: 471–472 Set C; 484–484C, 509A–512B, Reteaching: 521–522 Set G
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions.	**SE:** 483, 493–496, 497–500, 501–504, 513–516, Reteaching: 520–522 Sets C–E, H **TE:** 483–483A, 493A–496B, 497A–500B, 501A–504B, 513A–516B, Reteaching: 519–522 Sets C–E, H

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Measurement and Data	
Cluster: Solve problems involving measurement and estimation of intervals of time, liquid volumes and masses of objects.	
KY.3.MD.1 Tell and write time to the nearest minute and measure elapsed time intervals in minutes. Solve word problems involving addition and subtraction of time intervals within and across the hour in minutes.	**SE:** 531–532, 533–536, 537–540, 541–544, 565–568, Reteaching: 571–574 Sets A–C, I **TE:** 531–532A, 533A–536B, 537A–540B, 541A–544B, 565A–568B, Reteaching: 571–574 Sets A–C, I
KY.3.MD.2 Measure and solve problems involving mass and liquid volume.	**SE:** 309–312, Reteaching: 325 Set F; 531–532, 545–548, 549–552, 553–556, 557–560, 561–564, Reteaching: 572–574 Sets D–H **TE:** 309A–312B, Reteaching: 325–326 Set F; 531–532A, 545A–548B, 549A–552B, 553A–556B, 557A–560B, 561A–564B, Reteaching: 571–574 Sets D–H
a. Measure and estimate masses and liquid volumes of objects using standard units of grams (g), kilograms (kg) and liters (L)	**SE:** 309–312, Reteaching: 325 Set F; 531–532, 545–548, 549–552, 553–556, 557–560, 561–564, Reteaching: 572–574 Sets D–H **TE:** 309A–312B, Reteaching: 325–326 Set F; 531–532A, 545A–548B, 549A–552B, 553A–556B, 557A–560B, 561A–564B, Reteaching: 571–574 Sets D–H
b. Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units.	**SE:** 309–312, Reteaching: 325 Set F; 531–532, 545–548, 549–552, 553–556, 557–560, 561–564, Reteaching: 572–574 Sets D–H **TE:** 309A–312B, Reteaching: 325–326 Set F; 531–532A, 545A–548B, 549A–552B, 553A–556B, 557A–560B, 561A–564B, Reteaching: 571–574 Sets D–H

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Cluster: Understand and apply the statistics process.	
KY.3.MD.3 Investigate questions involving categorical data.	**SE:** 251, 253–256, 257–260, 261–264, 265–268, 269–272, Reteaching: 276–277 Sets A–C; 417–420 **TE:** 251–251A, 253A–256B, 257A–260B, 261A–264B, 265A–268B, 269A–272B, Reteaching: 276–277 Sets A–C; 417A–420B
a. Identify a statistical question focused on categorical data and gather data.	**SE:** 251 **TE:** 251-251A
b. Create a scaled pictograph and a scaled bar graph to represent a data set (using technology or by hand);	**SE:** 251, 257-260, 261-264 **TE:** 251-251A, 257A–260B, 261A-164B
c. Make observations from the graph about the questions posed, including "how many more" and "how many less" questions.	**SE:** 251, 253–256, 257–260, 265–268, Reteaching: 276–277 Sets A, C **TE:** 251–251A, 253A–256B, 257A–260B, 261A–264B, 265A–268B, 269A–272B, Reteaching: 276–277 Sets A, C
KY.3.MD.4 Investigate questions involving numerical data.	**SE:** 251, 252, 253-256, 261-264, 265-268, 269-272, 435–436, 457–460, 461–464, Reteaching: 473–474 Sets F, G **TE:** 251-251A, 252-252C, 253A-256B, 261A-264B, 265A-268B, 269A-272B**,** 435–436A, 457A–460B, 461A–464B, Reteaching: 473–474 Sets F, G
a. Identify a statistical question focused on numerical data.	**SE:** 252 **TE:** 252-252C
b. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.	**SE:** 435–436, 457–460, 461–464, Reteaching: 473–474 Sets F, G **TE:** 435–436A, 457A–460B, 461A–464B, Reteaching: 473–474 Sets F, G

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c. Show the data by making a dot plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.	**SE:** 435–436, 457–460, 461–464, Reteaching: 473–474 Sets F, G **TE:** 435–436A, 457A–460B, 461A–464B, Reteaching: 473–474 Sets F, G
d. Make observations from the graph about the questions posed, including questions about the shape of the data and compare responses.	**SE:** 435–436, 457–460, 461–464, Reteaching: 473–474 Sets F, G **TE:** 435–436A, 457A–460B, 461A–464B, Reteaching: 473–474 Sets F, G
Cluster: Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	
KY.3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.	**SE:** 207–208, 209–212, 213–216, 217–220, Reteaching: 239–240 Sets A–C; 252, 593-596, Reteaching: 604 Set C **TE:** 207–208A, 209A–212B, 213A–216B, 217A–220B, Reteaching: 239–240 Sets A–C; 252-252C, 593A–596B, Reteaching: 604 Set C
KY.3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft and improvised units).	**SE:** 207–208, 209–212, 213–216, 217–220, Reteaching: 239–240 Sets A–C **TE:** 207–208A, 209A–212B, 213A–216B, 217A–220B, Reteaching: 239–240 Sets A–C
KY.3.MD.7 Relate area to the operations of multiplication and addition.	**SE:** 101–104, Reteaching: 108 Set F; 252 **TE:** 101A–104B, Reteaching: 108 Set F; 252–252C
a. Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.	**SE:** 221–224, 233–236, Reteaching: 242 Set G **TE:** 221A–224B, 233A–236B, Reteaching: 241–242 Set G

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b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning.	**SE:** 221–224, 233–236, Reteaching: 242 Set G; 597–600, Reteaching: 604 Set D; 625–628, 629–632, Reteaching: 640 Set C **TE:** 221A–224B, 233A–236B, Reteaching: 241–242 Set G; 597A–600B, Reteaching: 604 Set D; 625A–628B, 629A–632B, Reteaching: 640 Set C
c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.	**SE:** 225-228, Reteaching: 241 Set E **TE:** 225A-228B, Reteaching: 241 Set E
d. Recognize area as additive. Find areas of figures that can be decomposed into non-overlapping rectangles by adding the areas of then non-overlapping parts, applying this technique to solve real world problems.	**SE:** 229–232, 233–236, Reteaching: 242 Sets F–G **TE:** 229A–232B, 233A–236B, Reteaching: 241–242 Sets F–G
Cluster: Geometric measurement: Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	
KY.3.MD.8 Solve real world and mathematical problems involving perimeters of polygons.	**SE:** 611–612, 613–616, 617–620, 621–624, 625–628, 629–632, 633–636, Reteaching: 639–640 Sets A–D **TE:** 611–612A, 613A–616B, 617A–620B, 621A–624B, 625A–628B, 629A–632B, 633A–636B, Reteaching: Sets A–D
a. Find the perimeter given the side lengths of a polygon.	**SE:** 611–612, 613–616, 617–620, Reteaching: 639 Set A **TE:** 611–612A, 613A–616B, 617A–620B, Reteaching: 639 Set A
b. Find an unknown side length, given the perimeter and some lengths.	**SE:** 611–612, 621–624, 625–628, 629–632, 633–636, Reteaching: 639 Set B **TE:** 611–612A, 621A–624B, 625A–628B, 629A–632B, 633A–636B, Reteaching: 639 Set B

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c. Draw rectangles with the same perimeter and different areas or with the same area and different perimeters.	**SE:** 625-628, 629-632, Reteaching: 640 Set C **SE:** 625A–628B, 629A–632B, Reteaching: 640 Set C
Geometry	
Cluster: Reason with shapes and their attributes.	
KY.3.G.1 Classify polygons by attributes.	**SE:** 583, 584, 585–588, 589–592, 593–596, 597–600, Reteaching: 603–604 Sets A–D **TE:** 583–583A, 584–584C, 585A–588B, 589A–592B, 593A–596B, 597A–600B, Reteaching: 603–604 Sets A–D
a. Recognize and classify polygons based on the number of sides and vertices (triangles, quadrilaterals, pentagons and hexagons).	**SE:** 583, 584, 585–588, 589–592, 593–596, 597–600, Reteaching: 603–604 Sets A, C, D **TE:** 583–583A, 584–584C, 585A–588B, 589A–592B, 593A–596B, 597A–600B, Reteaching: 603–604 Sets A, C, D
b. Recognize and classify quadrilaterals (rectangles, squares, parallelograms, rhombuses, trapezoids) by side lengths and understanding shapes in different categories may share attributes and the shared attributes can define a larger category.	**SE:** 583, 584, 585–588, 589–592, 593–596, 597–600, Reteaching: 603–604 Sets A, D **TE:** 583–583A, 584–584C, 585A–588B, 589A–592B, 593A–596B, 597A–600B, Reteaching: 603–604 Sets A, D
c. Identify shapes that do not belong to a given category or subcategory.	**SE:** 585–588, 589–592, 593–596, Reteaching: 603–604 Sets A–D **TE:** 585A–588B, 589A–592B, 593A–596B, Reteaching: 603–604 Sets A–D
KY.3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	**SE:** 435–436, 437–440, 441–444, Reteaching: 471 Sets A, B; 584, 585–588, 589–592, Reteaching: 603 Sets A, B **TE:** 435–436A, 437A–440B, 441A–444B, Reteaching: 471–472 Sets A, B; 584–584C, 585A–588B, 589A–592B, Reteaching: 603 Sets A, B

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Kentucky Academic Standards Mathematics 2019 Grade 4	enVision, ©2020 Grade 4
Mathematical Practices	
1. Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages at SavvasRealize.com, along with the Math Practices Posters, and supporting Math Practices Animations. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **Student's Edition and Teacher's Edition pages** 13–16, 21–24, 49–52, 53–56, 65–68, 81–84, 105–108, 109–112, 153–156, 205–208, 233–236, 237–240, 245–248, 261–264, 293–296

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2. Reason abstractly and quantitatively.	enVision Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **Student's Edition and Teacher's Edition pages** 5–8, 9–12, 13–16, 17–20, 21–24, 41–44, 57–60, 61–64, 65–68, 81–84, 85–88, 105–108, 129–132, 133–136, 137–140

Kentucky Academic Standards Mathematics 2019 Grade 4	**enVision, ©2020 Grade 4**
3. Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program specifically call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own processes and those of others. **Student's Edition and Teacher's Edition pages** 9–12, 17–20, 21–24, 37–40, 41–44, 45–48, 49–52, 57–60, 61–64, 85–88, 101–104, 137–140, 149–152, 177–180, 181–184
4. Model with mathematics.	Students using **enVision®** Mathematics are introduced to mathematical modeling in the early grades. They first use manipulatives and drawings and then equations to model addition and subtraction situations. The Visual Learning Bridge and Visual Learning Animation Plus often present real-world situations, and students are shown how these can be modeled mathematically. In later grades, students expand their modeling skills to include representations such as tables and graphs, as well as equations. **Student's Edition and Teacher's Edition pages** 5–8, 13–16, 65–68, 89–92, 93–96, 109–112, 133–136, 141–144, 145–148, 153–156, 169–172, 177–180, 181–184, 185–188, 193–196

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5. Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, rulers, protractors, and even pencil and paper, to digital tools, such as Online Math Tools and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **Student's Edition and Teacher's Edition pages** 17–20, 45–48, 53–56, 97–100, 133–136, 193–196, 245–248, 293–296, 297–300, 313–316, 317–320, 333–336, 337–340, 345–348, 353–356
6. Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms and concepts are highlighted in each lesson. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **Student's Edition and Teacher's Edition pages** 21–24, 37–40, 97–100, 105–108, 153–156, 197–200, 245–248, 269–272, 305–308, 345–348, 393–396, 417–420, 449–452, 465–468, 481–484

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7. Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. As students mature in their mathematical thinking, they look for structure in numerical operations by focusing on place value and properties of operations. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **Student's Edition and Teacher's Edition pages** 5–8, 37–40, 45–48, 53–56, 57–60, 61–64, 81–84, 89–92, 93–96, 97–100, 101–104, 129–132, 141–144, 145–148, 149–152
8. Look for and express regularity in repeated reasoning	Students are prompted to look for repetition in computations to help them develop shortcuts and become more efficient problem solvers. Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. The Problem-Based Learning activities offer students opportunities to look for regularity in the way operations behave. **Student's Edition and Teacher's Edition pages** 9–12, 49–52, 269–272, 309–312, 361–364, 365–368, 389–392, 421–424, 461–464, 481–484, 485–488, 489–492, 497–500, 521–524, 557–560

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Kentucky Academic Standards Mathematics 2019 Grade 4	enVision, ©2020 Grade 4
Operations and Algebraic Thinking	
Cluster: Use the four operations with whole numbers to solve problems.	
KY.4.OA.1 Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations.	**SE:** 223–224, 225–228, 229–232, Reteaching: 251 Set A **TE:** 223–224A, 225A–228B, 229A–232B, Reteaching: 251 Set A
KY.4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	**SE:** 85–88, 223–224, 225–228, 229–232, 233–236, 237–240, 241–244, 245–248, Reteaching: 251–252 Sets A, B, D; 260 **TE:** 85A–88B, 223–224A, 225A–228B, 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching: 251–252 Sets A, B, D; 260–260C
KY.4.OA.3 Solve multistep problems.	**SE:** 41–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching: 71–72 Sets B, F; 80, 85–88, 97–100, 105–108, 109–112, Reteaching: 115–118 Sets B, G, H; 137–140, 141–144, 149–152, 153-156, Reteaching: 159–160 Set C; 168, 173–176, 177-180, 181-184, 197–120, 205–208, Reteaching: 211–214 Sets B, H; 233–236, 237–240, 241–244, 245–248, Reteaching: 251 Set B; 260, 481–484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, 529–532, 569–572 **TE:** 41A–44B, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching: 71–72 Sets B, F; 80–80C, 85A–88B, 97A–100B, 105A-108B, 109A–112B, Reteaching: 115–118 Sets B, G, H; 137A–140B, 141A–144B, 149A–152B, 153A-156B, Reteaching: 159–160 Set C; 168– 168C, 173A–176B, 177A–180B, 181A–184B, 197A–120B, 205A–208B, Reteaching: 211–214 Sets B, H; 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching: 251 Set B; 260–260C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, 529A–532B, 569A–572B

Kentucky Academic Standards Mathematics 2019 Grade 4	**enVision, ©2020 Grade 4**
a. Perform operations in the conventional order when there are no parentheses to specify a particular order.	**SE:** 41–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching: 71–72 Sets B, F; 80, 85–88, 97–100, 105–108, 109–112, Reteaching: 115–118 Sets B, G, H; 137–140, 141–144, 149–152, 153-156, Reteaching: 159–160 Set C; 168, 173–176, 177-180, 181-184, 197–120, 205–208, Reteaching: 211–214 Sets B, H; 233–236, 237–240, 241–244, 245–248, Reteaching: 251 Set B; 260, 481–484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, 529–532, 569–572 **TE:** 41A–44B, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching: 71–72 Sets B, F; 80–80C, 85A–88B, 97A–100B, 105A-108B, 109A–112B, Reteaching: 115–118 Sets B, G, H; 137A–140B, 141A–144B, 149A–152B, 153A-156B, Reteaching: 159–160 Set C; 168– 168C, 173A–176B, 177A–180B, 181A–184B, 197A–120B, 205A–208B, Reteaching: 211–214 Sets B, H; 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching: 251 Set B; 260–260C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, 529A–532B, 569A–572B
b. Solve multistep problems posed with whole number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computations and estimation strategies including rounding.	**SE:** 41–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching: 71–72 Sets B, F; 80, 85–88, 97–100, 105–108, 109–112, Reteaching: 115–118 Sets B, G, H; 137–140, 141–144, 149–152, 153-156, Reteaching: 159–160 Set C; 168, 173–176, 177-180, 181-184, 197–120, 205–208 **TE:** 41A–44B, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching: 71–72 Sets B, F; 80–80C, 85A–88B, 97A–100B, 105A-108B, 109A–112B, Reteaching: 115–118 Sets B, G, H; 137A–140B, 141A–144B, 149A–152B, 153A-156B, Reteaching: 159–160 Set C; 168– 168C, 173A–176B, 177A–180B, 181A–184B, 197A–120B, 205A–208B

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Cluster: Gain familiarity with factors and multiples.	
KY.4.OA.4 Find factors and multiples of numbers in the range 1-100.	**SE:** 260, 261–264, 265–268, 269–272, 273–276, 277–280, Reteaching: 283–284 Sets A–E; 305–308, 521–524, 525–528 **TE:** 260–260C, 261A–264B, 265A–268B, 269A–272B, 273A–276B, 277A–280B, Reteaching: 283–284 Sets A–E; 305A–308B, 521A–524B, 525A–528B
a. Find all factor pairs for a whole number.	**SE:** 260, 261–264, 265–268, 269–272, Reteaching: 283–284 Sets A-C; 305–308, 521–524, 525–528 **TE:** 260–260C, 261A–264B, 265A–268B, 269A–272B, Reteaching: 283–284 Sets A–C; 305A–308B, 521A–524B, 525A–528B
b. Recognize that a whole number is a multiple of each of its factors.	**SE:** 277–280, Reteaching: 284 Set E; 521–524, 525–528 **TE:** 277A–280B, Reteaching: 284 Set E; 521A–524B, 525A–528B
c. Determine whether a given whole number is a multiple of a given one-digit number.	**SE:** 277–280, Reteaching: 284 Set E; 305–308, 521–524, 525–528 **TE:** 277A–280B, Reteaching: 284 Set E; 305A–308B, 521A–524B, 525A–528B
d. Determine whether a given whole number is prime or composite.	**SE:** 259, 273-276, Reteaching: 274 Set D **TE:** 259-259A, 273A-276B, Reteaching: 274 Set D
Cluster: Generate and analyze patterns.	
KY.4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern not explicit in the rule itself.	**SE:** 519–520, 521–524, 525–528, 529–532, 533–536, Reteaching: 539–540 Sets A–D; 589–592 **TE:** 519–520A, 521A–524B, 525A–528B, 529A–532B, 533A–536B, Reteaching: 539–540 Sets A–D; 589A–592B

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Number and Operations in Base Ten	
Cluster: Generalize place value understanding for multi-digit whole numbers.	
KY.4.NBT.1 Recognize in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.	**SE:** 4, 9–12, 21–24, Reteaching: 27 Set B **TE:** 4–4C, 9A–12B, 21A–24B, Reteaching: 27 Set B
KY.4.NBT.2 Represent and compare multi-digit whole numbers.	**SE:** 3, 4, 5-8, 13–16, 21–24, Reteaching: 27 Sets A-C; 35–36 **TE:** 3–3A, 4–4C, 5A–8B, 13A–16B, 21A–24B, Reteaching: 27 Sets A-C; 35–36A
a. Read and write multi-digit whole numbers using base-ten numerals, number names and expanded form.	**SE:** 3, 4, 5-8, 13–16, 21–24, Reteaching: 27 Sets A-C; 35–36 **TE:** 3–3A, 4–4C, 5A–8B, 13A–16B, 21A–24B, Reteaching: 27 Sets A-C; 35–36A
b. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**SE:** 4, 13–16, 21–24, Reteaching: 27 Set C **TE:** 4–4C, 13A–16B, 21A–24B, Reteaching: 27 Set C
KY.4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.	**SE:** 4, 17–20, 21–24, Reteaching: 28 Sets D, E **TE:**, 4–4C, 17A–20B, 21A–24B, Reteaching: 28 Sets D, E
Cluster: Use place value understanding and properties of operations to perform multi-digit arithmetic.	
KY.4.NBT.4 Fluently add and subtract multi-digit whole numbers using an algorithm.	**SE:** 35–36, 37–40, 41–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching: 71–72 Sets A–E; 80, 233–236, 237–240, 241–244, 521–524, 565–568 **TE:** 35–36A, 37A–40B, 41A–44B, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching: 71–72 Sets A–E; 80–80C, 233A–236B, 237A–240B, 241A–244B, 521A–524B, 565A–568B

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KY.4.NBT.5 Multiply a whole numbers • Up to four digits by a one-digit whole number • Two-digit number by two-digit number Multiply using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays and/or area models.	**SE:** 79, 80, 81–84, 89–92, 93–96, 97–100, 101–104, 105–108, 109–112, Reteaching: 115–118 Sets A–G; 127–128, 129–132, 133–136, 137–140, 141–144, 145–148, 149–152, 153–156, Reteaching: 159–160 Sets A–F; 168, 173–176, 177–180, 223–224, 225–228, 229–232, 233–236, 237–240, 241–244, 245–248, Reteaching: 251–252 Sets A, B, D; 261–264, 265–268, 269–272, 273–276, 277–280, Reteaching: 283–284 Sets A–E; 301–304, 313–316, 525–528 **TE:** 79–79A, 80–80C, 81A–84B, 89A–92B, 93A–96B, 97A–100B, 101A–104B, 105A–108B, 109A–112B, Reteaching: 115–118 Sets A–G; 127–128A, 129A–132B, 133A–136B, 137A–140B, 141A–144B, 145A–148B, 149A–152B, 153A–156B, Reteaching: 159–160 Sets A–F; 168–168C, 173A–176B, 177A–180B, 223–224A, 225A–228B, 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching: 251–252 Sets A, B, D; 261A–264B, 265A–268B, 269A–272B, 273A–276B, 277A–280B, Reteaching: 283–284 Sets A–E; 301A–304B, 313A–316B, 525A–528B
KY.4.NBT.6 Divide up to four-digit dividends by one-digit divisors. Find whole number quotients and remainders using • strategies based on place value • the properties of operations • the relationship between multiplication and division Illustrate and explain the calculation by using equations, rectangular arrays and/or area models.	**SE:** 167, 169–172, 173–176, 177–180, 181–184, 185–188, 189–192, 193–196, 197–200, 201–204, 205–208, Reteaching: 211–214 Sets A, C, H; 229–232, 233–236, 237–240, 241–244, 245–248, Reteaching: 251–252 Sets A, B, D; 260, 305–308, 525–528, 529–532 **TE:** 167–167A, 168–168C, 169A–172B, 173A–176B, 177A–180B, 181A–184B, 185A–188B, 189A–192B, 193A–196B, 197A–200B, 201A–204B, 205A–208B, Reteaching: 211–214 Sets A, C, H; 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching: 251–252 Sets A, B, D; 260–260C, 305A–308B, 525A–528B, 529A–532B

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Number and Operations—Fractions	
Cluster: Extend understanding of fraction equivalence and ordering.	
KY.4.NF.1 Understand and generate equivalent fractions.	**SE:** 291–292, 293–296, 297–300, 301–304, 305–308, 313–316, 317–320, Reteaching: 323–324 Sets A, B; 421–424, 553–556 **TE:** 291–292, 293A–296B, 297A–300B, 301A–304B, 305A–308B, 313A–316B, 317A–320B, Reteaching: 323–324 Sets A, B; 421A–424B, 553A–556B
a. Use visual fraction models to recognize and generate equivalent fractions that have different numerators/denominators even though they are the same size.	**SE:** 291–292, 293–296, 297–300, 301–304, 305–308, 313–316, 317–320, Reteaching: 323–324 Sets A, B; 421–424, 553–556 **TE:** 291–292, 293A–296B, 297A–300B, 301A–304B, 305A–308B, 313A–316B, 317A–320B, Reteaching: 323–324 Sets A, B; 421A–424B, 553A–556B
b. Explain why a fraction *a/b* is equivalent to a fraction $(n \times a)/(n \times b)$.	**SE:** 293–296, 297–300, 301–304, 305–308, Reteaching: 323 Sets A, B **TE:** 293A–296B, 297A–300B, 301A–304B, 305A–308B, Reteaching: 323 Sets A, B
KY.4.NF.2 Compare two fractions with different numerators and different denominators using the symbols >, =, or <. Recognize comparisons are valid only when the two fractions refer to the same whole. Justify the conclusions.	**SE:** 259, 309–312, 313–316, 317–320, Reteaching: 324 Sets C; D, 332, 415, 416, 421–424 **TE:** 259–259A, 309A–312B, 313A–316B, 317A–320B, Reteaching: 324 Sets C, D; 332–332A, 415–415A, 416–416C, 421A–424B

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Cluster: Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	
KY.4.NF.3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b.	**SE:** 331, 332, 333–336, 341–344, 345–348, 349–352, 353–356, 369–372, Reteaching: 375–376 Sets A, C, D **TE:** 331–331A, 332–332C, 333A–336B, 341A–344B, 345A–348B, 349A–352B, 353A–356B, 369A–372B, Reteaching: 375–376 Sets A, C, D
a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	**SE:** 331, 332, 333–336, 341–344, 345–348, 349–352, 353–356, 369–372, Reteaching: 375–376 Sets A, C, D **TE:** 331–331A, 332–332C, 333A–336B, 341A–344B, 345A–348B, 349A–352B, 353A–356B, 369A–372B, Reteaching: 375–376 Sets A, C, D
b. Decomposing a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions,	**SE:** 332, 337–340, Reteaching: 375 Sets A, B; 416, 553–556 **TE:** 332-332A, 337A–340B, Reteaching: 375 Sets A, B; 416-416C, 553A–556B
c. Add and subtract mixed numbers with like denominators.	**SE:** 331, 332, 357–360, 361–364, 365–368, 369–372, Reteaching: 376 Set E; Reteaching: 407 Set C; 429–432, 569–572 **TE:** 331-331A, 332-332C, 357A–360B, 361A–364B, 365A–368B, 369A–372B, 376, Reteaching: 376 Set E; Reteaching: 407 Set C; 429A–432B, 569A–572B
d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.	**SE:** 331, 332, 333–336, 341–344, 345–348, 349–352, 353–356, 357–360, 361–364, 365–368, 369–372, Reteaching: 376 Set F; 397–400, 401–404, 417–420, 421–424, 425–428, 429–432, Reteaching: 435–436 Sets A–D; 481–484, 485–488, 489–492

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(Continued) d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.	**TE:** 331–331A, 332–332C, 333A–336B, 341A–344B, 345A–348B, 349A–352B, 353A–356B, 357A–360B, 361A–364B, 365A–368B, 369A–372B, Reteaching: 376 Set F; 397A–400B, 401A–404B, 417A–420B, 421A–424B, 425A–428B, 429A–432B, Reteaching: 435–436 Sets A–D; 481A–484B, 485A–488B, 489A–492B
KY.4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	**SE:** 383–384, 385–388, 89–392, 393–396, Reteaching: 407 Sets A, B **TE:** 383–384A, 385A–388B, 389A–392B, 393A–396B, Reteaching: 407 Sets A, B
a. Understand a fraction a/b as a multiple of 1/b.	**SE:** 383–384, 385–388, 89–392, 393–396, Reteaching: 407 Sets A, B **TE:** 383–384A, 385A–388B, 389A–392B, 393A–396B, Reteaching: 407 Sets A, B
b. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number.	**SE:** 389–392, 393–396, Reteaching: 407 Sets B, C **TE:** 389A–392B, 393A–396B, Reteaching: 407 Sets B, C
c. Solve word problems involving multiplication of a fraction by a whole number.	**SE:** 383–384, 389–392, 393–396, 397–400, 401–404, Reteaching: 407–408 Sets C, E; 481–484, 485–488, 489–492, 501–504, 505–508 **TE:** 383–384A, 389A–392B, 393A–396B, 397A–400B, 401A–404B, Reteaching: 407–408 Sets C, E; 481A–484B, 485A–488B, 489A–492B, 501A–504B, 505A–508B

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Cluster: Understand decimal notation for fractions and compare decimal fractions.	
KY.4.NF.5 Convert and add fractions with denominators of 10 and 100.	**SE:** 443–444, 457–460, Reteaching: 472 Set D **TE:**, 443–444A, 457A–460B, Reteaching: 472 Set D
a. Convert a fraction with a denominator 10 to an equivalent fraction with a denominator 100.	**SE:** 443–444, 457–460, Reteaching: 472 Set D **TE:**, 443–444A, 457A–460B, Reteaching: 472 Set D
b. Add two fractions with respective denominators 10 and 100.	**SE:** 443–444, 457–460, Reteaching: 472 Set D **TE:**, 443–444A, 457A–460B, Reteaching: 472 Set D
KY.4.NF.6 Use decimal notation for fractions with denominators 10 or 100.	**SE:** 443–444, 445–448, 449–452, Reteaching: 471 Sets A, B **TE:** 443A–444B, 445A–448B, 449A–452B, Reteaching: 471 Sets A, B
KY.4.NF.7 Compare two decimals to hundredths.	**SE:**, 443–444, 453–456, 465–468, Reteaching: 471 Set C; 493–496 **TE:** 443–444A, 453A–456B, 465A–468B, Reteaching: 471 Set C; 493A–496B
a. Compare two decimals to hundredths by reasoning about their size.	**SE:**, 443–444, 453–456, 465–468, 493–496 **TE:** 443–444A, 453A–456B, 465A–468B, 493A–496B
b. Recognize that comparisons are valid only when the two decimals refer to the same whole.	**SE:**, 443–444, 453–456, 465–468, 493–496 **TE:** 443–444A, 453A–456B, 465A–468B, 493A–496B

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c. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions.	**SE:**, 453–456, Reteaching: 472 Set E; 493–496 **TE:** 453A–456B, Reteaching: 472 Set E; 493A–496B
Measurement and Data	
Cluster: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	
KY.4.MD.1 Know relative sizes of measurement units (mass, weight, liquid volume, length, time) within one system of units (metric system, U.S. standard system and time).	**SE:** 397–400, 479, 480, 481–484, 485–488, 489–492, 493–496, 497–500, Reteaching: 511 Sets A, B **TE:** 397A–400B, 479–479A, 480-480C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, Reteaching: 511 Sets A, B
a. Understand the relationship of measurement units within any given measurement system.	**SE:** 397–400, 479, 481–484, 485–488, 489–492, 493–496, 497–500, Reteaching: 511 Sets A, B **TE:** 397A–400B, 479–479A, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, Reteaching: 511 Sets A, B
b. Within any given measurement system, express measurements in a larger unit in terms of a smaller unit.	**SE:** 397–400, 479, 481–484, 485–488, 489–492, 493–496, 497–500, Reteaching: 511 Sets A, B **TE:** 397A–400B, 479–479A, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, Reteaching: 511 Sets A, B
c. Record measurements equivalents in a two-column table.	**SE:** 479, 485–488, 489–492, 493–496, 497–500 **TE:** 479–479A, 485A–488B, 489A–492B, 493A–496B, 497A–500B

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KY.4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects and money. (Continued) KY.4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects and money.	**SE:** 383–384, 397–400, 401–404, Reteaching: 408 Set D; 449–452, 453–456, 461–464, 465–468, Reteaching: 472 Set E; 480, 481–484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, Reteaching: 511 Set A **TE:** 383–384A, 397A–400B, 401A–404B, Reteaching: 408 Set D; 449A–452B, 453A–456B, 461A–464B, 465A–468B, Reteaching: 472 Set E; 480–480C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, Reteaching: 511 Set A
a. Solve measurement problems involving whole number, simple fractions or decimals.	**SE:** 383–384, 397–400, 401–404, Reteaching: 408 Set D; 449–452, 453–456, 461–464, 465–468, Reteaching: 472 Set E; 480, 481–484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, Reteaching: 511 Set A **TE:** 383–384A, 397A–400B, 401A–404B, Reteaching: 408 Set D; 449A–452B, 453A–456B, 461A–464B, 465A–468B, Reteaching: 472 Set E; 480–480C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, Reteaching: 511 Set A
b. Solve problems that require converting a given measurement from a larger unit to a smaller unit within a common measurement system, such as 2 km = 2,000 m.	**SE:** 383–384, 397–400, 401–404, Reteaching: 408 Set D; 449–452, 453–456, 461–464, 465–468, Reteaching: 472 Set E; 480, 481–484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, Reteaching: 511 Set A **TE:** 383–384A, 397A–400B, 401A–404B, Reteaching: 408 Set D; 449A–452B, 453A–456B, 461A–464B, 465A–468B, Reteaching: 472 Set E; 480–480C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, Reteaching: 511 Set A

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c. Visually display measurement quantities using representations such as number lines that feature a measurement scale. (Continued) c. Visually display measurement quantities using representations such as number lines that feature a measurement scale.	**SE:** 383–384, 397–400, 401–404, Reteaching: 408 Set D; 449–452, 453–456, 461–464, 465–468, Reteaching: 472 Set E; 480, 481–484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, Reteaching: 511 Set A **TE:** 383–384A, 397A–400B, 401A–404B, Reteaching: 408 Set D; 449A–452B, 453A–456B, 461A–464B, 465A–468B, Reteaching: 472 Set E; 480–480C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, Reteaching: 511 Set A
KY.4.MD. 3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	**SE:** 153–156, 168, 479, 501–504, 505–508, Reteaching: 512 Sets C; D605–608 **TE:** 153A–156B, 168–168C, 479–479A, 501A–504B, 505A–508B, Reteaching: 512 Sets C; D605A–608B
Cluster: Understand and apply the statistics process.	
KY.4.MD.4 Use dot plots to analyze data to a statistical question.	**SE:** 415, 416, 417–420, 421–424, 425–428, 429–432, Reteaching: 435–436 Sets A–D **TE:** 415, 416, 417–420, 421–424, 425–428, 429–432, Reteaching: 435–436 Sets A–D
a. Identify a statistical question focused on numerical data.	**SE:** 416 **TE:** 416-416C
b. Make a dot plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8).	**SE:** 415, 416, 421–424, 425–428, 429–432, Reteaching: 435 Set B **TE:** 415-415A, 416-416C, 421A–424B, 425A–428B, 429A–432B, Reteaching: 435 Set B

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c. Solve problems involving and subtraction of fractions by using information presented in dot plots.	**SE:** 415, 416, 417–420, 421–424, 425–428, 429–432, Reteaching: 435–436 Sets A–D **TE:** 415-415A, 416-416C, 417A–420C, 421A–424C, 425A–428C, 429A–432C, Reteaching: 435–436 Sets A–D
Cluster: Geometric measurement: understand concepts of angle and measure angles.	
KY.4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	**SE:** 547, 549–552, 553–556, 557–560, 561-564, 569–572, Reteaching: 575-576 Sets B, D; 589-592 **TE:** 547-547A, 549A–552B, 553A–556B, 557A–560B, 561A–564B, 569A–572B, Reteaching: 575-576 Sets B, D; 589A-592B
KY.4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**SE:** 547, 548, 561–564, 569–572, Reteaching: 576 Sets D, F **TE:** 547–547A, 548–548C, 561A–564B, 569A–572B, Reteaching: 576 Sets D, F
KY.4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems.	**SE:** 565–568, 569–572, Reteaching: 576 Set E **TE:** 565A–568B, 569A–572B, Reteaching: 576 Set E

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Geometry	
Cluster: Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	
KY.4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse) and perpendicular and parallel lines. Identify these in two-dimensional figures.	**SE:** 547, 548, 549–552, Reteaching: 575 Set A; 583–584, 585–588, 589–592, 593–596, 605–608, Reteaching: 611 Set A **TE:** 547–547A, 548–548C, 549A–552B, Reteaching: 575 Set A; 583–584A, 585A–588B, 589A–592B, 593A–596B, 605A–608B, Reteaching: 611 Set A
KY.4.MD.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category and identify right triangles.	**SE:** 583–584, 589–592, 593–596, 605–608, Reteaching: 611–612 Sets B, C, F **TE:** 583–584A, 589A–592B, 593A–596B, 605A–608B, Reteaching: 611–612 Sets B, C, F
KY.4.MD.3 Identify lines of symmetry.	**SE:** 583–584, 597–600, 601–604, Reteaching: 612 Sets D, E **TE:** 583–584A, 597A–600B, 601A–604B, Reteaching: 612 Sets D, E
a. Recognize a line of symmetry for a two-dimensional figure.	**SE:** 583–584, 597–600, 601–604, Reteaching: 612 Sets D, E **TE:** 583–584A, 597A–600B, 601A–604B, Reteaching: 612 Sets D, E
b. Identify line-symmetric figures and draw lines of symmetry.	**SE:** 583–584, 597–600, 601–604, Reteaching: 612 Sets D, E **TE:** 583–584A, 597A–600B, 601A–604B, Reteaching: 612 Sets D, E

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Mathematical Practices	
1. Make sense of problems and persevere in solving them.	enVision Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages at SavvasRealize.com, along with the Math Practices Posters, and supporting Math Practices Animations. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **Student's Edition and Teacher's Edition pages** 25–28, 53–56, 61–64, 65–68, 89–92, 93–96, 97–100, 101–104, 109–112, 113–116, 137–140, 149–152, 153–156, 161–164, 185–188

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2. Reason abstractly and quantitatively.	enVision Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **Student's Edition and Teacher's Edition pages** 13–16, 45–48, 49–52, 85–88, 105–108, 113–116, 133–136, 157–160, 197–200, 201–204, 205–208, 209–212, 229–232, 233–236, 237–240

Kentucky Academic Standards Mathematics 2019 Grade 5	**enVision, ©2020 Grade 5**
3. Construct viable arguments and critique the reasoning of others.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In enVision Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program specifically call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own processes and those of others. **Student's Edition and Teacher's Edition pages** 9–12, 13–16, 21–24, 25–28, 45–48, 49–52, 53–56, 57–60, 65–68, 81–84, 85–88, 89–92, 93–96, 97–100, 109–112
4. Model with mathematics.	Students using **enVision®** Mathematics are introduced to mathematical modeling in the early grades. They first use manipulatives and drawings and then equations to model addition and subtraction situations. The Visual Learning Bridge and Visual Learning Animation Plus often present real-world situations, and students are shown how these can be modeled mathematically. In later grades, students expand their modeling skills to include representations such as tables and graphs, as well as equations. **Student's Edition and Teacher's Edition pages** 5–8, 65–68, 89–92, 93–96, 101–104, 105–108, 109–112, 145–148, 161–164, 185–188, 193–196, 197–200, 241–244, 249–252, 277–280

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5. Use appropriate tools strategically.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, rulers, protractors, and even pencil and paper, to digital tools, such as Online Math Tools and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **Student's Edition and Teacher's Edition pages** 5–8, 61–64, 81–84, 149–152, 189–192, 197–200, 237–240, 273–276, 293–296, 301–304, 353–356, 397–400, 401–404, 457–460, 473–476
6. Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms and concepts are highlighted in each lesson. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **Student's Edition and Teacher's Edition pages** 17–20, 21–24, 29–32, 105–108, 113–116, 133–136, 145–148, 161–164, 181–184, 249–252, 305–308, 309–312, 341–344, 349–352, 361–364

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7. Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. As students mature in their mathematical thinking, they look for structure in numerical operations by focusing on place value and properties of operations. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **Student's Edition and Teacher's Edition pages** 5–8, 9–12, 13–16,17–20, 25–28, 29–32, 61–64, 101–104, 129–132, 153–156, 181–184, 201–204, 229–232, 245–248, 297–300
8. Look for and express regularity in repeated reasoning	Students are prompted to look for repetition in computations to help them develop shortcuts and become more efficient problem solvers. Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. The Problem-Based Learning activities offer students opportunities to look for regularity in the way operations behave. **Student's Edition and Teacher's Edition pages** 17–20, 29–32, 57–60, 133–136, 141–144, 145–148, 157–160, 281–284, 289–292, 301–304, 357–360, 413–416, 433–436, 489–492, 493–496

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Operations and Algebraic Thinking	
Cluster: Write and interpret numerical expressions.	
KY.5.OA.1 Use parentheses, brackets, or braces in numerical expressions and evaluate expressions that include symbols.	**SE:** 535, 537–540, 541–544, 549–552, Reteaching: 555–556 Sets A, B, D **TE:** 535–535A, 537A–540B, 541A–544B, 549A–552B, Reteaching: 555–556 Sets A, B, D
KY.5.OA.2 Write simple expressions with numbers and interpret numerical expressions without evaluating them	**SE:** 535, 536, 541–544, 545–548, Reteaching: 556 Sets C, D **TE:** 535–535A, 536–536C, 541A–544B, 545A–548B, Reteaching: 556 Sets C, D
Cluster: Analyze patterns and relationships.	
KY.5.OA.3 Generate numerical patterns for situations.	**SE:** 591, 592, 593–596, 597–600, 601–604, 605–608, Reteaching: 611–612 Sets A–D **TE:** 591, 592, 593A–596B, 597A–600B, 601A–604B, 605A–608B, Reteaching: 611–612 Sets A–D
a. Generate a rule for growing patterns, identifying the relationship between corresponding terms (x, y).	**SE:** 592, 605–608 **TE:** 592, 605A–608B
b. Generate patterns using one or two given rules (x, y).	**SE:** 592, 593–596, 597–600, 601–604, 605–608, Reteaching: 611–612 Sets A–D **TE:** 592, 593A–596B, 597A–600B, 601A–604B, 605A–608B, Reteaching: 611–612 Sets A–D
c. Use tables, ordered pairs and graphs to represent the relationship between quantities.	**SE:** 592, 593–596, 597–600, 601–604, 605–608, Reteaching: 611–612 Sets A–D **TE:** 592, 593A–596B, 597A–600B, 601A–604B, 605A–608B, Reteaching: 611–612 Sets A–D

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Number and Operations in Base Ten	
Cluster: Understand the place value system.	
KY.5.NBT.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.	**SE:** 4, 9–12, 13–16, Reteaching: 35 Sets B, C, 80, 81–84, Reteaching: 119 Set A **TE:** 4–4C, 9A–12B, 13A–16B, Reteaching: 35 Sets B, C, 80–80C, 81A–84B, Reteaching: 119 Set A
KY.5.NB.2 Multiply and divide by powers of 10. • Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. • 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.	**SE:** 3, 5–8, Reteaching: 35 Set A; 80, 81–84, Reteaching: 119 Set A; 127–128, 129–132, Reteaching: 167 Set A; 229–232, Reteaching: 255 Set A; 267, 268, 501–504, 505–508, 509–512, Reteaching: 527–528 Sets D–F **TE:** 3–3A, 5A–8B, Reteaching: 35 Set A; 80–80C, 81A–84B, Reteaching: 119 Set A; 127–128A, 129A–132B, Reteaching: 167–168 Set A; 229A–232B, Reteaching: 255–256 Set A; 267–267A, 268-268C, 501A-504B, 505A-508B, 509A-512B, Reteaching: 527-528 Sets D-F
KY.5.NBT.3 Read, write and compare decimals to thousandths.	**SE:** 3, 4, 13–16, 17–20, 29–32, Reteaching: 35–36 Sets C, F **TE:** 3–3A, 4–4C, 13A–16B, 17A–20B, 29A–32B, Reteaching: 35–36 Sets C, F
a. Read and write decimals to thousandths using base-ten numerals, number names and expanded form.	**SE:** 3, 4, 13–16, 17–20, 29–32, Reteaching: 35–36 Sets C, F **TE:** 3, 4, 13A–16B, 17A–20B, 29A–32B, Reteaching: 35–36 Sets C, F
b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**SE:** 4, 21–24, 29–32, Reteaching: 36 Sets D, F **TE:** 4–4C, 21A–24B, 29A–32B, Reteaching: 36 Sets D, F

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KY.5.NBT.4 Use place value understanding to round decimals to any place.	**SE:** 4, 25–28, Reteaching: 36 Set E; 45–48, 49–52, Reteaching: 71 Set B **TE:** 4–4C, 25A–28B, Reteaching: 36 Set E; 45A–48B, 49A–52B, Reteaching: 71 Set B
Cluster: Perform operations with multi-digit whole numbers and with decimals to hundredths.	
KY.5.NBT.5 Fluently multiply multi-digit whole numbers (not to exceed four-digit by two-digit multiplication) using an algorithm.	**SE:** 80, 85–88, 89–92, 93–96, 97–100, 101–104, 105–108, 109–112, 113–116, Reteaching: 119–120 Sets B–G; 487–488, 489–492, 493–496, 497–500, 513–516, 517–520, 521–524, Reteaching: 527–528 Sets A, B, C, G, H **TE:** 80–80C, 85A–88B, 89A–92B, 93A–96B, 97A–100B, 101A–104B, 105A–108B, 109A–112B, 113A–116B, Reteaching: 119–120 Sets B–G; 487–488A, 489A–492B, 493A–496B, 497A–500B, 513A–516B, 517A–520B, 521A–524B, Reteaching: 527–528 Sets A, B, C, G, H
KY.5.NBT.6 Divide up to four-digit dividends by two-digit divisors.	**SE:** 179, 181–184, 185–188, 189–192, 193–196, 197–200, 201–204, 205–208, 209–212, Reteaching: 215–218 Sets A–H; 487–488, 489–492, 493–496, 497–500, 513–516 **TE:** 179–179A, 181A–184B, 185A–188B, 189A–192B, 193A–196B, 197A–200B, 201A–204B, 205A–208B, 209A–212B, Reteaching: 215–218 Sets A–H; 487–488A, 489A–492B, 493A–496B, 497A–500B, 513A–516B

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a. 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 • the relationship between multiplication and division	**SE:** 179, 181–184, 185–188, 189–192, 193–196, 197–200, 201–204, 205–208, 209–212, Reteaching: 215–218 Sets A–H; 487–488, 489–492, 493–496, 497–500, 513–516 **TE:** 179–179A, 181A–184B, 185A–188B, 189A–192B, 193A–196B, 197A–200B, 201A–204B, 205A–208B, 209A–212B, Reteaching: 215–218 Sets A–H; 487–488A, 489A–492B, 493A–496B, 497A–500B, 513A–516B
b. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**SE:** 179, 181–184, 185–188, 189–192, 193–196, 197–200, 201–204, 205–208, 209–212, Reteaching: 215–218 Sets A–H; 487–488, 489–492, 493–496, 497–500, 513–516 **TE:** 179–179A, 181A–184B, 185A–188B, 189A–192B, 193A–196B, 197A–200B, 201A–204B, 205A–208B, 209A–212B, Reteaching: 215–218 Sets A–H; 487–488A, 489A–492B, 493A–496B, 497A–500B, 513A–516B
KY.5.NBT.7 Operations with decimals to hundredths.	**SE:** 43–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching: 71–72 Sets A–E; 79, 81-84, 85-88, 89-92, 93-96, 97-100, 127–128, 129–132, 133–136, 137–140, 141–144, 145–148, 149–152, 153–156, 157–160, 161–164, Reteaching: 167–170 Sets A–F; 227-228, 229–232, 233–236, 237–240, 241–244, 245–248, 248–252, Reteaching: 255–258 Sets A–F; 268 **TE:** 43–44A, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching: 71–72 Sets A–E; 79–79A, 81A-84B, 85A-88B, 89A-92B, 93A-96B, 97A-100B, 127–128A, 129A–132B, 133A–136B, 137A–140B, 141A–144B, 145A–148B, 149A–152B, 153A–156B, 157A–160B, 161A–164B, Reteaching: 167–170 Sets A–F; 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, 249A–252B, Reteaching: 255–258 Sets A–F; 268–268C

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a. Add, subtract, multiply, and divide decimals to hundredths using… • concrete models or drawings • strategies based on place value • properties of operations • the relationship between addition and subtraction	**SE:** 43–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching: 71–72 Sets A–E; 79, 81-84, 85-88, 89-92, 93-96, 97-100, 127–128, 129–132, 133–136, 137–140, 141–144, 145–148, 149–152, 153–156, 157–160, 161–164, Reteaching: 167–170 Sets A–F; 227-228, 229–232, 233–236, 237–240, 241–244, 245–248, 248–252, Reteaching: 255–258 Sets A–F; 268 **TE:** 43–44A, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching: 71–72 Sets A–E; 79–79A, 81A-84B, 85A-88B, 89A-92B, 93A-96B, 97A-100B, 127–128A, 129A–132B, 133A–136B, 137A–140B, 141A–144B, 145A–148B, 149A–152B, 153A–156B, 157A–160B, 161A–164B, Reteaching: 167–170 Sets A–F; 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, 249A–252B, Reteaching: 255–258 Sets A–F; 268–268C
b. Relate the strategy to a written method and explain the reasoning used.	**SE:** 43–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching: 71–72 Sets A–E; 79, 81-84, 85-88, 89-92, 93-96, 97-100, 127–128, 129–132, 133–136, 137–140, 141–144, 145–148, 149–152, 153–156, 157–160, 161–164, Reteaching: 167–170 Sets A–F; 227-228, 229–232, 233–236, 237–240, 241–244, 245–248, 248–252, Reteaching: 255–258 Sets A–F; 268 **TE:** 43–44A, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching: 71–72 Sets A–E; 79–79A, 81A-84B, 85A-88B, 89A-92B, 93A-96B, 97A-100B, 127–128A, 129A–132B, 133A–136B, 137A–140B, 141A–144B, 145A–148B, 149A–152B, 153A–156B, 157A–160B, 161A–164B, Reteaching: 167–170 Sets A–F; 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, 249A–252B, Reteaching: 255–258 Sets A–F; 268–268C

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Number and Operations—Fractions	
Cluster: Use equivalent fractions as a strategy to add and subtract fractions.	
KY.5.NF.1 Efficiently add and subtract fractions with unlike denominators (including mixed numbers) by … • using reasoning strategies, such as counting up on a number line or creating a visual fraction model • Finding common denominators	**SE:** 268, 269–272, 273–276, 277–280, 281–284, 285–288, 289–292, 293–296, 297–300, 301–304, 305–308, 309–312, Reteaching: 319–322 Sets A–G **TE:** 268–268C, 269A–272B, 273A–276B, 277A–280B, 281A–284B, 285A–288B, 289A–292B, 293A–296B, 297A–300B, 301A–304B, 305A–308B, 309A–312B, Reteaching: 319–322 Sets A–G
KY.5.NF.2 Solve word problems involving addition and subtraction of fractions.	**SE:** 268, 269–272, 273–276, 277–280, 281–284, 285–288, 289–292, 293–296, 297–300, 301–304, 305–308, 309–312, 313–316, Reteaching: 19–322 Sets A–H; 427–428, 429–432, 433–436, 437–440, 441–444, Reteaching: 448 Sets C, D **TE:** 268–268C, 269A–272B, 273A–276B, 277A–280B, 281A–284B, 285A–288B, 289A–292B, 293A–296B, 297A–300B, 301A–304B, 305A–308B, 309A–312B, Reteaching: 319–322 Sets A–H; 427–428A, 429A–432B, 433A–436B, 437A–440B, 441A–444B, Reteaching: 448 Sets C, D
a. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators	**SE:** 268, 269–272, 273–276, 277–280, 281–284, 285–288, 289–292, 293–296, 297–300, 301–304, 305–308, 309–312, 313–316, Reteaching: 19–322 Sets A–H; 427–428, 429–432, 433–436, 437–440, 441–444, Reteaching: 448 Sets C, D **TE:** 268–268C, 269A–272B, 273A–276B, 277A–280B, 281A–284B, 285A–288B, 289A–292B, 293A–296B, 297A–300B, 301A–304B, 305A–308B, 309A–312B, Reteaching: 319–322 Sets A–H; 427–428A, 429A–432B, 433A–436B, 437A–440B, 441A–444B, Reteaching: 448 Sets C, D

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b. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	**SE:** 268, 269–272, 289–292, Reteaching: 319–320 Sets A, D; 437–440 **TE:** 268–268C, 269A–272B, 289A–292B, Reteaching: 319–320 Sets A, D; 429A–432B, 433A–436B
Cluster: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	
KY.5.NF.3 Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem.	**SE:** 384, 385–388, 389–392, Reteaching: 419 Set A **TE:** 384–384C, 385A–388B, 389A–392B, Reteaching: 419 Set A
KY.5.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	**SE:** 331–332, 333–336, 337–340, 341–344, 345–348, 349–352, Reteaching: 371–372 Sets A–D **TE:** 331–332A, 333A–336B, 337A–340B, 341A–344B, 345A–348B, 349A–352B, Reteaching: 371–372 Sets A–D
a. Interpret the product (a/b) × q as *a* parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations a × q ÷ b.	**SE:** 331–332, 333–336, 337–340, 341–344, 345–348, 349–352, Reteaching: 371–372 Sets A–D **TE:** 331–332A, 333A–336B, 337A–340B, 341A–344B, 345A–348B, 349A–352B, Reteaching: 371–372 Sets A–D
b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	**SE:** 331–332, 353–356, Reteaching: 372 Set E **TE:** 331–332, 353A–356B, Reteaching: 371–372 Set E

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KY.5.NF.5 Interpret multiplication as scaling (resizing), by:	
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.	**SE:** 331–332, 361–364, Reteaching: 374 Set G **TE:** 331–332, 361A–364B, Reteaching: 374 Set G
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×a)/(n×b) to the effect of multiplying a/b by 1.	**SE:** 361–364, Reteaching: 374 Set G **TE:** 361A–364B, Reteaching: 374 Set G
KY.5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers.	**SE:** 333–336, 337–340, 357–360, 365–368, 371, Reteaching: 373–374 Sets A, B, F, H; 384, 437–440 **TE:** 333A–336B, 337A–340B, 357A–360B, 365A–368B, Reteaching: 373–374 Sets A, B, F, H; 384-384C, 437A–440B
KY.5.NF.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	**SE:** 384 **TE:** 384-384C
a. Interpret division of a unit fraction by a non-zero whole number and compute such quotients.	**SE:** 383, 393–396, 397–400, 405–408, 409–412, Reteaching: 419–420 Sets B–D **TE:** 383–383A, 393A–396B, 397A–400B, 405A–408B, 409A–412B, Reteaching: 419–420 Sets B–D

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b. Interpret division of a whole number by a unit fraction, and compute such quotients.	**SE:** 383, 393–396, 397–400, 401–404, 405–408, 409–412, Reteaching: 419–420 Sets B–D **TE:** 383–383A, 393A–396B, 397A–400B, 401A–404B, 405A–408B, 9A–412B, Reteaching: 419–420 Sets B–D
c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions.	**SE:** 383, 393–396, 397–400, 401–404, 405–408, 409–412, Reteaching: 419–420 Sets B–D **TE:** 383–383A, 393A–396B, 397A–400B, 401A–404B, 405A–408B, 409A–412B, Reteaching: 419–420 Sets B–D
Measurement and Data	
Cluster: Convert like measurement units within a given measurement system.	
KY.5.MD.1 Convert among different-sized standard measurement units (mass, weight, liquid volume, length, time) within one system of units (metric system, U.S. standard system and time).	**SE:** 487–488, 489–492, 93–496, 497–500, 501–504, 505–508, 509–512, 513–516, 517–520, 521–524, Reteaching: 527–528 Sets A–H; 536 **TE:** 487–488A, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, 509A–512B, 513A–516B, 517A–520B, 521A–524B, Reteaching: 527–528 Sets A–H; 536–536C
Cluster: Understand and apply the statistics process.	
KY.5.MD.2 Identify and gather data for statistical questions focused on both categorical and numerical data. Select an appropriate data display (bar graph, pictograph, dot plot). Make observations from the graph about the questions posed.	**SE:** 427–428, 429–432, 433–436, 437–440, 441–444, Reteaching: 447–448 Sets A–C **TE:** 427–428A, 429A–432B, 433A–436B, 437A–440B, 441A-444B, Reteaching: 447–448 Sets A–C
Cluster: Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	
KY.5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	**SE:** 456 **TE:** 455-456C

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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.	**SE:** 455, 457–460, 473–476, Reteaching: 479 Set A **TE:** 455–455A, 457A–460B, 473A–476B, Reteaching: 479 Set A
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.	**SE:** 457–460, 473–476, Reteaching: 479 Set A **TE:** 457A–460B, 473A–476B, Reteaching: 479 Set A
KY.5.MD.4 Measure volumes by counting unit cubic cm, cubic in, cubic ft, and improvised units.	**SE:** 456, 457–460, 461–464, 473–476 **TE:** 456, 457A–460B, 461A–464B, 473A–476B
KY.5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	**SE:** 456, 461-464, Reteaching: 479 Set B **TE:** 456-456C, 461A-464B, Reteaching: 479 Set B
a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes.	**SE:** 456, 461-464, Reteaching: 479 Set B **TE:** 456-456C, 461A-464B, Reteaching: 479 Set B
b. Apply the formulas V = l × w × h and V = B × h for rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.	**SE:** 455, 461-464, Reteaching: 479 Set B **TE:** 455-455A, 461A-464B, Reteaching: 479 Set B
c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	**SE:** 455, 465-468, 469–472, Reteaching: 480 Sets C, D **TE:** 455-455A, 465A-468B, 469A–472B, Reteaching: 480 Sets C, D

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Geometry	
Cluster: Graph points on the coordinate plane to solve real-world and mathematical problems.	
KY.5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second.	**SE:** 563–564, 565–568, 569–572, 577–580, Reteaching: 583–584 Sets A, B, C **TE:** 563–564A, 565A–568B, 569A–572B, 577A–580B, Reteaching: 583–584 Sets A, B, C
KY.5.G.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.	**SE:** 563–564, 569–572, 573–576, 577–580, Reteaching: 583–584 Sets B, C; 592, 601–604, Reteaching: 612 Set C **TE:** 563–564A, 569A–572B, 573A–576B, 577A–580B, Reteaching: 583–584 Sets B, C; 592–592C, 601A–604B, Reteaching: 612 Set C
Cluster: Classify two-dimensional figures into categories based on their properties.	
KY.5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	**SE:** 619–620, 621–624, 625–628, 629–632, 633–636, Reteaching: 639–640 Sets A–D **TE:** 619–620A, 621A–624B, 625A–628B, 629A–632B, 633A–636B, 639–Reteaching: 640 Sets A–D
KY.5.G.4 Classify two-dimensional figures in a hierarchy based on properties.	**SE:** 619–620, 621–624, 625–628, 629–632, 633–636, Reteaching: 639–640 Sets B, C, D **TE:** 619–620A, 621A–624B, 625A–628B, 629A–632B, 633A–636B, 639–Reteaching: 640 Sets B, C, D