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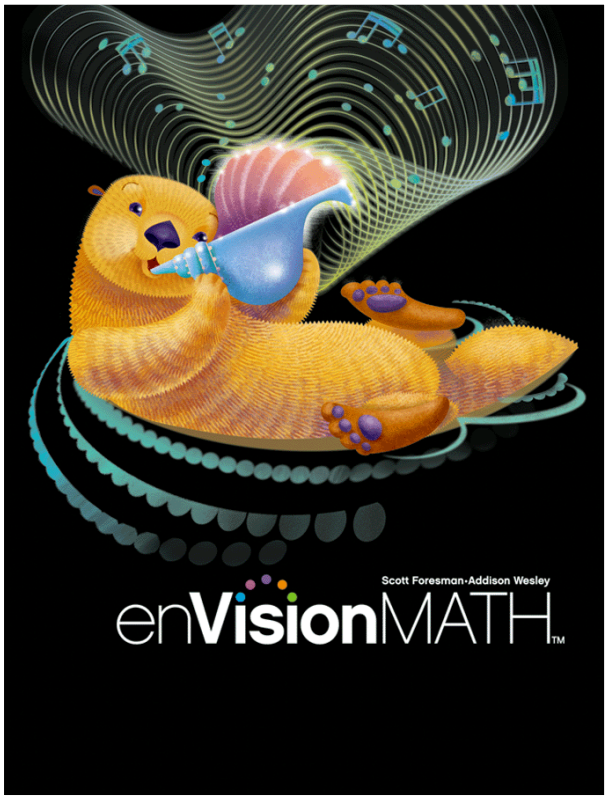

to the

Common Core State Standards for Mathematics Oregon

Grade 3

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Common Core State Standards for Mathematics Oregon Grade 3	enVisionMATH ©2009 with Common Core Transition Kit Grade 3 Topics - Lessons
Mathematical Practices	3.MP
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.	
3.MP.1 Make sense of problems and persevere in solving them.	*enVisionMATH* is built on a foundation of problem-based instruction that has sense-making at its heart. The Problem Solving Handbook, found on pages xiii–xxiii, presents to students a process that begins with making sense of the problem. *Read and Understand,* the first phase of the process, has students ask themselves, *What am I trying to find?* and *What do I know?,* questions that will help identify the givens and constraints of the problem. In the second phase, *Plan and Solve,* students decide on a solution plan. The Problem-Solving Recording Sheet, a reproducible teaching resource, provides a structured outline to help students make sense of the problem and implement a workable solution method. In the final phase, *Look Back and Check,* students verify that their work is reasonable and reflects the information given. Each lesson begins with Problem-Based Interactive Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a real-world 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 topic includes at least one problem-solving lesson in which students focus on honing their sense-making and problem-solving skills.

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3.MP.2 Reason abstractly and quantitatively.	*enVisionMATH* 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. In the Do You Understand? part of the Guided Practice, students gain experiences with quantitative reasoning as they consider the meaning of different parts of an expression or equation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution.
3.MP.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 Pearson's *enVisionMATH,* the Problem-Based Interactive Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. The many Reasoning exercises found throughout the program specifically call for students to justify or explain their solutions. Writing to Explain exercises help students develop foundational critical reasoning skills by having them construct explanations for processes. 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.

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3.MP.4 Model with mathematics.	Students in Pearson's *enVisionMATH* 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 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.
3.MP.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 etools, calculators, 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.
3.MP.6 Attend to precision.	Students are expected to use mathematical terms and symbols with precision. Key terms and concepts are highlighted in each lesson. In the Do You Understand? feature, students revisit these key terms or concepts and provide explicit definitions or explanations. For the Writing to Explain and Think About the Structure exercises, students are asked to use precise language to provide clear explanations of terms, concepts, or processes. Students are reminded to use appropriate units of measure in their solutions as well as in labels for diagrams, graphs, and other kinds of displays.

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3.MP.7 Look for and make use of structure.	Students are encouraged to look for structure as they develop solution plans. In the Look for a Pattern problem-solving lessons, children in the early years develop a sense of patterning with visual and physical objects. 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.
3.MP.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 Interactive Learning activities offer students opportunities to look for regularity in the way operations behave.

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Operations and Algebraic Thinking	**3.OA**
A. Represent and solve problems involving multiplication and division.	
3.OA.1 Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*	5-1, 5-2, 5-3, 5-4, 5-5, 6-5, 18-2
3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*	7-1, 7-2, 7-3, 8-2, 19-3
3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 5-9, 5-10, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 7-1, 7-2, 7-3, 7-4, 7-5, 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 12-10, 18-6, 18-7 **CC:** 6-1A, 6-7A, 8-5A
3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ÷ 3, 6 × 6 = ?.*	5-2, 7-1, 7-3, 7-4, 7-5, 8-1, 8-2, 8-5 **CC:** 7-2A, 7-4A, 8-5A
B. Understand properties of multiplication and the relationship between multiplication and division.	
3.OA.5 Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*	5-1, 5-2, 5-4, 5-5, 6-2, 6-6, 18-4, 18-5

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3.OA.6 Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	7-5, 8-2, 8-3, 8-4, 19-1 **CC:** 7-2A, 7-4A
C. Multiply and divide within 100.	
3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.	5-8, 8-1, 8-2, 8-3, 8-4, 18-6, 19-4
D. Solve problems involving the four operations, and identify and explain patterns in arithmetic.	
3.OA.8 Solve two-step word problems using the four operations. 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. (This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).)	2-8, 2-9, 2-10, 3-5, 4-3, 4-4, 4-6, 5-7, 5-8, 5-10, 6-1, 6-2, 6-3, 6-7, 19-6
3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*	2-1, 2-2, 5-2, 5-5, 5-6, 5-7, 5-8, 5-9, 6-5, 9-1, 9-2, 9-3, 9-6, 15-5
Number and Operations in Base Ten	3.NBT
E. Use place value understanding and properties of operations to perform multi-digit arithmetic. **(A range of algorithms may be used.)**	
3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	1-5, 1-6, 1-9, 2-4, 2-8, 4-6 **CC:** 1-5A, 1-5B

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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.	2-1, 2-6, 2-7, 2-8, 2-9, 2-10, 3-5, 4-1, 4-2, 4-3, 4-4, 4-5, 16-4 **CC:** 2-7A, 4-1A, 4-3A
3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	5-7, 18-1 **CC:** 5-8A
Number and Operations—Fractions	3.NF
(Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)	
F. Develop understanding of fractions as numbers.	
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*.	12-1, 12-3 **CC:** 12-2A
3.NF.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.	12-7
a. Represent a fraction 1/*b* on a number line diagram 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* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.	12-4, 12-7
b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.	12-7
3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	12-5, 12-6
a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	12-5, 12-6, 12-7 **CC:** 12-7A, 12-7B, ,12-8A

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b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.	12-5, 12-6 **CC:** 12-8A
c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*	**CC:** 12-8A, 12-8B
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, e.g., by using a visual fraction model.	**CC:** 12-5A, 12-7A, 12-7B
Measurement and Data	3.MD
G. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	
3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	17-1, 17-2, 17-3, 17-4, 17-6
3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm^3 and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. [Excludes multiplicative comparison problems (problems involving notions of "times as much"])	14-3, 14-4, 14-5, 14-6, 15-1, 15-2, 15-3, 15-4, **CC:** 15-5A

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H. Represent and interpret data.	
3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*	2-10, 4-6, 20-2, 20-3, 20-4, 20-9
3.MD.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.	14-2 **CC:** 20-9A
I. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	
3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.	**CC:** 16-6A, 16-7D
a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.	**CC:** 16-6B
b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.	**CC:** 16-6B
3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	16-6 **CC:** 16-6A
3.MD.7 Relate area to the operations of multiplication and addition.	16-6, 16-8
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.	**CC:** 16-7A

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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.	5-2, 16-8 **CC:** 16-7A
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* × *b* and *a* × *c*. Use area models to represent the distributive property in mathematical reasoning.	6-1, 6-2, 6-3, 6-4 **CC:** 16-7B
d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	16-8 **CC:** 16-7C
J. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	
3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	6-7, 16-1, 16-2, 16-3 **CC:** 16-2A
Geometry	3.G
K. Reason with shapes and their attributes.	
3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	10-5, 10-6, 10-7, 10-8 **CC:** 10-8A, 10-8B
3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*	12-1 **CC:** 10-8A, 10-8B, 16-7C