



CUTOUT4CS

Standards Alignment

Ohio's Learning Standards for Mathematics

Grade 3

Mathematics Focus Standards

Domain: Operations and Algebra

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

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.

Supporting Standards

Domain: Operations and Algebra

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.

3.OA.5 Apply properties of operations as strategies to multiply and divide.2 Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

Domain: Number Operations and Base Ten

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.

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.





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Standards Alignment

Ohio's Learning Standards for Mathematics

Grade 4

Mathematics Focus Standards

Domain: Operations and Algebra

4.OA.3 Solve multistep word problems posed with whole numbers and having 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 computation and estimation strategies including rounding.

4.OA.4 Find all factor pairs for a whole number in the range of 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range of 1-100 is prime or composite.

4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.

Supporting Standards

Domain: Operations and Algebra

4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.1

Domain: Number Operations and Base Ten

4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to the its right. For example, recognize that 700 divided by 70 is 10 by applying concepts of place value and division.

4. NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, 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.





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Standards Alignment

Ohio's Learning Standards for Computer Science

Grades 3 & 4

Data and Analysis: *Visualization and Communication*

DA.VC.3.a Create chart or graph to inform a target audience about observations and data collected.

DA.VC.4.a Organize data into subsets to provide different views or commonalities and present insights gained using visual or other types of representations.

Algorithmic Thinking and Programming: *Algorithms*

ATP.A.3.a Construct and reflect on errors in an algorithm to accomplish a given task.

ATP.A.4.a Construct and refine an algorithm to accomplish a given task.

Algorithmic Thinking and Programming: *Modularity*

ATP.M.3.a Decompose (i.e. break down) the steps needed or not needed (i.e. abstraction) into precise sequences of instructions to design an algorithm.

ATP.M.4.a Decompose (i.e. break down) the steps needed or not needed (i.e. abstraction) into precise sequences of instructions to design an algorithm.

Algorithmic Thinking and Programming: *Control Structures*

ATP.CS.3.a Create a program using sequences, events, loops and conditionals to solve a problem.

ATP.CS.4.a Create a program using sequences, events, loops, and conditionals to solve a problem.

Algorithmic Thinking and Programming: *Program Development*

ATP.PD.3.a Use a design process to plan the development of a program that solves problems.

ATP.PD.3.b Using a given program known to contain errors, identify and debug errors to ensure it works.

ATP.PD.4.a Use a design process to plan and develop a program that addresses a multi-step problem.

ATP.PD.4.b Using guiding questions, work through a program to identify errors and discuss possible solutions to repair the program.

Impacts of Computing: *Social Interactions*

IC.SI.3.a Collaborate and consider diverse perspectives to improve digital artifacts.

IC.SI.4.a Collaborate and consider diverse perspectives to improve digital artifacts.





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CSTA Standards Alignment (2017)

Data and Analysis:

1B-DA-06 Organize and present collected data visually to highlight relationships and support a claim.

Algorithmic Thinking and Programming:

1B-AP-08 Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

1B-AP-10 Create programs that include sequences, events, loops, and conditionals.

1B-AP-11 Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

1B-AP-13 Use an interactive process to plan the development of a program by including others' perspectives and considering user preferences.

1B-AP-15 Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

1B-AP-16 Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

Impacts of Computing:

1B-IC-20 Seek diverse perspectives for the purpose of improving computational artifacts.

