

SD Common Core State Standards Disaggregated Math Template

Domain:	Operations and Algebraic Thinking	Cluster:	Use the four operations with whole numbers to solve problems.	Grade level:	4
----------------	-----------------------------------	-----------------	---	---------------------	---

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
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.	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.	5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

Student Friendly Language:
I can demonstrate commutative property.
I can write an equation more than one way.
I can identify an example of commutative property.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> • commutative property of multiplication • factors • array • multiplication facts 	The order of factors in a multiplication equation does not change the product.	<p>Draw an array demonstrating a multiplication equation as a comparison.</p> <p>Model multiplication equations as a comparison using manipulatives, students acting etc.</p> <p>Recite multiplication facts.</p>

Key Vocabulary:
interpret comparison array commutative property of multiplication equation factors
Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?
To be able to apply the commutative property through brainstorming real life applications. Example: the order of events, arrays in a garden, arranging flowers in a flower shop (e.g. 4 pots of flowers on 5 shelves and vice versa) do not affect the outcome.

SD Common Core State Standards Disaggregated Math Template

Domain:	Operations and Algebraic Thinking	Cluster:	Use the four operations with whole numbers to solve problems.	Grade level:	4
----------------	-----------------------------------	-----------------	---	---------------------	---

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
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.	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.	5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem

Student Friendly Language:
I can solve word problems using multiplication to find an unknown number in an equation. I can solve word problems using division to find an unknown number in an equation. I can choose the best operation to solve a word problem.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> • multiplication fact families (factors & multiples) • division fact families • context clues that identify operations (sum, difference, in all) 	<p>Multiplication and division can be used to solve more complex problems.</p> <p>Word problems can be solved using factors and multiples.</p>	<p>Solve word problems.</p> <p>Use symbols to solve equations.</p> <p>Choose the best operation to solve a word problem.</p> <p>Recognize clue words to choose which operation to use.</p>

Key Vocabulary:												
<table> <tr> <td>equal</td> <td>variables</td> <td>equation</td> <td>factors</td> <td>multiples</td> <td>multiply</td> </tr> <tr> <td>divide</td> <td>solve</td> <td>word problems</td> <td>product</td> <td>quotient</td> <td></td> </tr> </table>	equal	variables	equation	factors	multiples	multiply	divide	solve	word problems	product	quotient	
equal	variables	equation	factors	multiples	multiply							
divide	solve	word problems	product	quotient								

Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?
To use mental math to solve problems when unit pricing, such as grocery shopping, saving for a bike, purchasing movie tickets, and managing a paper route.
To choose the most efficient operation for problem solving, such as counting desks in a classroom individually or by multiplying rows.
Using drawings and equations with a symbol for the unknown number to represent the problem.

SD Common Core State Standards Disaggregated Math Template

Domain:	Operations and Algebraic Thinking	Cluster:	Use the four operations with whole numbers to solve problems.	Grade level:	4
----------------	-----------------------------------	-----------------	---	---------------------	---

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
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.	4.OA.3 Solve multi-step 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.	5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Student Friendly Language:
<p>I can add multi-step word problems with missing digits. I can subtract multi-step word problems with missing digits. I can multiply multi-step word problems with missing digits. I can divide multi-step word problems with missing digits. I can review my work to see if it makes sense. I can explain the steps taken to solve a problem.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> ● addition facts ● subtraction facts ● multiplication facts ● division facts ● variables ● self-check process ● mental math strategies ● estimation strategies ● inverse operations 	<p>There are key phrases in word problems. Fact families help with the self-check process. Mental math helps with the self-check process. Estimation helps with the self-check process. Variables represent the unknown quantity.</p>	<p>Solve multi-step word problem. Solve for the variables in the problem. Check multi-step problem using mental math and estimation.</p>

Key Vocabulary:
<p>difference sum total twice remainder estimate round</p>
<p>Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?</p>
<p>How much of a pizza would be left after sharing. Decide if there is enough for others or find ways to split the remainder so everyone gets equal amounts.</p>

SD Common Core State Standards Disaggregated Math Template

Domain:	Operations and Algebraic Thinking	Cluster:	Gain familiarity with factors and multiples	Grade level:	4
----------------	-----------------------------------	-----------------	---	---------------------	---

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
<p>3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations. By the end of Grade 3, know from all memory all products of two one-digit numbers.</p> <p>3.OA.9 Identify arithmetic patterns, and explain them using properties of operations.</p>	<p>4.OA.4 Find all factor pairs for a whole number in the range 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 1-100 is prime or composite.</p>	None

Student Friendly Language:
<p>I can find factor pairs and multiples of all whole numbers from 1-100.</p> <p>I can decide if a number from 1-100 is prime (only divisible by one and itself) or composites (has more factors than one and itself).</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> • prime and composite numbers • factors • multiples • whole numbers 	<p>Whole numbers are factors of their product.</p> <p>The difference between prime and composite numbers.</p> <p>Multiples are products of any two whole numbers.</p>	<p>Create a factorization model (eg. factor tree, factor line, etc.) of any given whole number up to 100.</p> <p>Complete a fact family.</p> <p>Compose a list of prime and composite numbers.</p>

Key Vocabulary:										
<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">factors</td> <td style="width: 20%;">multiples</td> <td style="width: 20%;">composite numbers</td> <td style="width: 20%;">prime numbers</td> <td style="width: 20%;">whole numbers</td> </tr> <tr> <td>patterns</td> <td>factor tree</td> <td>fact family</td> <td>divisible</td> <td>product</td> </tr> </table>	factors	multiples	composite numbers	prime numbers	whole numbers	patterns	factor tree	fact family	divisible	product
factors	multiples	composite numbers	prime numbers	whole numbers						
patterns	factor tree	fact family	divisible	product						
<p>Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?</p>										
<p>Determining dates of events (In the summer the ice cream truck comes every 4 days. It was there on June 4th and June 8th. When will it come next?)</p> <p>Scoring sports (basketball, multiples of 2 and 3 points; football, multiples of 6 points)</p> <p>Purchasing multiples of products</p>										

SD Common Core State Standards Disaggregated Math Template

Domain:	Operations and Algebraic Thinking	Cluster:	Generate and analyze patterns	Grade level:	4
----------------	-----------------------------------	-----------------	-------------------------------	---------------------	---

Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
<p>3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.</p>	<p>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.</p>	<p>5.OA.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.</p>

Student Friendly Language:
<p>I can identify the rule for any number or shape pattern. I can apply (use) the rule for any number or shape pattern. I can explain the rule for any number or shape pattern.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> • odd and even numbers • multiplication facts • four math operations 	<p>Patterning can alternate between odd and even numbers.</p> <p>Patterning can be numbers or shapes.</p> <p>Different patterns can have different rules.</p>	<p>Identify number and shape patterns that follow a given rule.</p> <p>Apply a given rule to continue a number or shape pattern.</p> <p>Explain what the rule is for a number or shape pattern. Generate a number or shape pattern.</p>

Key Vocabulary:					
<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">sequence patterns</td> <td style="width: 20%;">multiples rule</td> <td style="width: 20%;">alternate apply</td> <td style="width: 20%;">identify generate</td> <td style="width: 20%;">generate</td> </tr> </table>	sequence patterns	multiples rule	alternate apply	identify generate	generate
sequence patterns	multiples rule	alternate apply	identify generate	generate	
Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?					
<p>Trying to predict the amount of time it will take to finish farm/ranch work.</p> <p>If you are playing a game and you are behind, how many baskets/points you need to win.</p> <p>If you are making jewelry, what type of pattern will you use.</p>					