

## SD Common Core State Standards Disaggregated Math Template

|                |                                   |                 |  |                     |   |
|----------------|-----------------------------------|-----------------|--|---------------------|---|
| <b>Domain:</b> | Number and Operations in Base Ten | <b>Cluster:</b> | Generalize place value understanding for multi-digit whole numbers | <b>Grade level:</b> | 4 |
|----------------|-----------------------------------|-----------------|--|---------------------|---|

| Correlating Standard in Previous Year | Number Sequence & Standard   | Correlating Standard in Following Year  |
|---------------------------------------|--|---|
|                                       | 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 its right. For example recognize that $700/70=10$ by applying concepts of place value and division. | 5.NBT.1 Recognize that in a multi-digit number, a digit in one place represent 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. |

| Student Friendly Language:  |
|---|
| I can identify the value of each digit in a multi-digit whole number up to one million. |
| I can describe the structure of the base ten number system.                             |

| Know<br>(Factual)  | Understand<br>(Conceptual)<br>The students will understand that:                               | Do<br>(Procedural, Application, Extended Thinking)  |
|--|--|---|
| <ul style="list-style-type: none"> <li>• whole numbers zero to one million</li> <li>• place value up to one million</li> </ul> | Each digit in a multi-digit number has ten times the value of the digit directly on the right. | Recognize that each digit's value is multiplied by ten as you move to the left.<br>Identify the value of a whole number in a given place. |

| Key Vocabulary:   |
|---|
| Multi-digit<br>whole number<br>Place value  |
| 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"? |
| Understand the value of money to make good purchasing/financial decisions.  |
| Determine the amount necessary to complete various tasks.   |

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|----------------|-----------------------------------|--|--|---------------------|---|
| <b>Domain:</b> | Number and Operations in Base Ten | <b>Cluster:</b><br><b>Understand Place Value</b> | Generalize place value understanding for multi-digit whole numbers | <b>Grade level:</b> | 4 |
|----------------|-----------------------------------|--|--|---------------------|---|

| Correlating Standard in Previous Year | Number Sequence & Standard  | Correlating Standard in Following Year   |
|---------------------------------------|---|--|
|                                       | <p>4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)</p> | <p>5.NBT.3 Read, write and compare decimals to thousandths.</p> <p>a. Read and write decimals to thousandths using base-ten materials.</p> <p>b. Compare two decimals to thousandths based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, <math>&lt;</math> symbols to record the results of comparisons.</p> |

| Student Friendly Language:  |
|---|
| <p>I can read, write, and compare multi-digit whole numbers using <math>&gt;</math>, <math>=</math>, <math>&lt;</math> symbols.</p> <p>I can write and explain the expanded form of multi-digit numbers.</p> <p>I can write and explain the word form of multi-digit numbers.</p> <p>I can write and explain the standard form of multi-digit numbers.</p> <p>I can represent the base-ten form of multi-digit numbers.</p> |

| <b>Know (Factual)</b>  | <b>Understand (Conceptual)</b><br>The students will understand that:   | <b>Do (Procedural, Application, Extended Thinking)</b>  |
|--|--|---|
| <ul style="list-style-type: none"> <li>• <math>&gt;</math>, <math>=</math>, <math>&lt;</math> symbols</li> <li>• Whole numbers <math>\leq 1,000,000</math></li> <li>• Number words <math>\leq 1,000,000</math></li> <li>• Comparisons</li> <li>• Expanded Form</li> <li>• Word Form</li> <li>• Base-Ten Form</li> <li>• Standard Form</li> </ul> | <p>Numbers can be written in expanded form, standard form, and word form.</p> <p>There are a variety of ways to compare numbers.</p> <p>The base-ten number system has a place-value structure..</p> | <p>Construct multi-digit numbers using expanded form, base-ten, and word form up to 1,000,000.</p> <p>Read and compare numbers <math>\leq 1,000,000</math> using the <math>&gt;</math>, <math>=</math>, <math>&lt;</math> symbols.</p> <p>Represent and recognize equivalent representations for the same number.</p> |

| Key Vocabulary:   |                     |              |              |               |               |               |           |            |              |           |          |  |
|---|---------------------|--------------|--------------|---------------|---------------|---------------|-----------|------------|--------------|-----------|----------|--|
| <table style="width: 100%; border: none;"> <tr> <td style="width: 16.6%;">multi-digit numbers</td> <td style="width: 16.6%;">compare</td> <td style="width: 16.6%;">whole number</td> <td style="width: 16.6%;">base-ten</td> <td style="width: 16.6%;">expanded form</td> <td style="width: 16.6%;">standard form</td> </tr> <tr> <td>word form</td> <td>equivalent</td> <td>greater than</td> <td>less than</td> <td>equal to</td> <td></td> </tr> </table> | multi-digit numbers | compare      | whole number | base-ten      | expanded form | standard form | word form | equivalent | greater than | less than | equal to |  |
| multi-digit numbers   | compare             | whole number | base-ten     | expanded form | standard form |               |           |            |              |           |          |  |
| word form   | equivalent          | greater than | less than    | equal to      |               |               |           |            |              |           |          |  |
| <p><b>Relevance and Applications:</b> 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>Students are able to compare statistics in sporting events.</p> <p>Students are able to analyze statistics within other subject areas such as, science and social studies.</p> <p>Students are able to compare prices while making purchases.</p> <p>Students are able to manage and reflect on finances.</p>  |                     |              |              |               |               |               |           |            |              |           |          |  |

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|----------------|-----------------------------------|-----------------|--|---------------------|---|

| Correlating Standard in Previous Year  | Number Sequence & Standard  | Correlating Standard in Following Year                                |
|--|---|---|
| 3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100. | 4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place (Grade 4 expectations in the domain are limited to whole numbers less than or equal to 1,000,000) | 5.NBT.4 Use place value understanding to round decimals to any place. |

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| <b>Student Friendly Language:</b>   |
| I can round multi-digit whole numbers to any place value up to 1,000,000 (one million). |

| <b>Know<br/>(Factual)</b>  | <b>Understand<br/>(Conceptual)<br/>The students will understand that:</b>  | <b>Do<br/>(Procedural, Application, Extended Thinking)</b>   |
|--|--|--|
| <ul style="list-style-type: none"> <li>whole numbers 0-1,000,000</li> <li>place value up to 1,000,000</li> <li>rounding strategies</li> <li>multi-digit numbers</li> </ul> | <p>Rounding helps to understand if the actual answer is reasonable.</p> <p>The value of a digit in our number system is determined by its place value position.</p> <p>Rounding to an appropriate place value allows for reasonable estimates.</p> | <p>Identify which place value needs to be rounded.</p> <p>Use rounding strategies to re-write the number to the nearest place value.</p> <p>Create real world problems to apply their understanding of rounding up to 1,000,000.</p> |

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| <b>Key Vocabulary:</b>   |
| <p>whole numbers<br/>place value (ones to one million)<br/>estimate<br/>round<br/>multi-digit<br/>strategies</p>   |
| <b>Relevance and Applications:</b> 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”? |
| Rounding to a reasonable number allows you to estimate the amount of treats for a class, buses for a field trip, kids in a school, or the number of people living in a state.  |

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|----------------|-----------------------------------|-----------------|--|---------------------|---|
| <b>Domain:</b> | Number and Operations in Base Ten | <b>Cluster:</b> | Use place value understanding and properties of operations to perform multi-digit arithmetic | <b>Grade level:</b> | 4 |
|----------------|-----------------------------------|-----------------|--|---------------------|---|

| Correlating Standard in Previous Year   | Number Sequence & Standard   | Correlating Standard in Following Year   |
|---|--|--|
| 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. | 4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.) | 5.NBT.7; Add, subtract, multiply and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. |

| Student Friendly Language:  |
|---|
| <p>I can add numbers up to one million using an efficient method.</p> <p>I can subtract numbers up to one million using an efficient method.</p> <p>I can check my answers using the inverse operation.</p> |

| Know<br>(Factual)   | Understand<br>(Conceptual)<br>The students will understand that:   | Do<br>(Procedural, Application, Extended Thinking)   |
|---|--|--|
| <ul style="list-style-type: none"> <li>Numbers can be broken apart by place value</li> <li>Addition and subtraction are inverse operations</li> </ul> | <p>There are a variety of strategies used to add numbers.</p> <p>Place value determines the value of a digit.</p> <p>The Commutative and Associative Properties of Addition can be used to solve problems.</p> | <p>Calculate the sums of multi-digit numbers using the standard algorithm up to 1 million.</p> <p>Calculate the differences of multi-digit numbers up to 1 million using the standard algorithm.</p> |

| Key Vocabulary:  |
|--|
| <p>addends                      sum                      difference                      regrouping                      subtrahend                      minuend</p> <p>Associative Property                      Commutative Property                      algorithm                      inverse operation</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>Add purchases while shopping.</p> <p>Add monthly expenses and income to create a budget.</p> <p>Determine perimeter of a garden to buy fencing.</p>   |

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| Correlating Standard in Previous Year  | Number Sequence & Standard  | Correlating Standard in Following Year  |
|--|---|---|
| 3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g. $9 \times 80$ , $5 \times 60$ ) using strategies based on place value and properties of operations. | 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. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.) | 5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm. |

| Student Friendly Language:   |
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| <p>I can multiply a number up to four digits by a one-digit number and explain how I did it.</p> <p>I can multiply a two digit number by a two digit number and explain how I did it.</p> <p>I can solve a multiplication problem in more than one way.</p> <p>I can construct a model of a multiplication problem by using equations, rectangular arrays, and/or area models.</p> |

| Know<br>(Factual)  | Understand<br>(Conceptual)<br>The students will understand that:   | Do<br>(Procedural, Application, Extended Thinking)   |
|--|--|--|
| <ul style="list-style-type: none"> <li>Properties of operations can be used to multiply.</li> <li>Place value strategies can be used to multiply.</li> </ul> | <p>Multiplication is another way to do addition.</p> <p>There are a variety of strategies used to multiply numbers.</p> <p>Models can represent multiplication sentences.</p> <p>There is a relationship between the process of multiplying single-digit numbers and multi-digit numbers.</p> <p>Estimation can be used to see if an answer is reasonable.</p> | <p>Display a model from a multiplication problem.</p> <p>Show more than one way to solve a multiplication problem.</p> <p>Illustrate and explain the models and calculations of multiplication.</p> <p>Explain how to use place value, rectangular arrays, and area models to solve multiplication problems.</p> <p>Make estimation of problems.</p> |

| Key Vocabulary:  |
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| <div style="display: flex; justify-content: space-between; padding: 5px;"> <span>Place value strategy</span> <span>repeated addition array</span> <span>distributive property equation</span> <span>digit area</span> <span>product whole number</span> <span>factor/factors</span> </div> |

**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”?

- Multiply to determine area for painting or carpeting.
- Multiply livestock and feed per animal to determine amount of feed needed.
- Use unit price and quantity needed to determine total cost (e.g., If there are 20 students in a class and each student needs 4 folders that cost \$0.10, how much will it cost the class to buy their folders?)

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|----------------|-----------------------------------|-----------------|--|---------------------|---|

| Correlating Standard in Previous Year  | Number Sequence & Standard   | Correlating Standard in Following Year   |
|--|--|--|
| 3.NBT.3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., $9 \times 80$ , $5 \times 60$ ) using strategies based on place value and properties of operations. | 4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000. A range of algorithms may be used.) | 5.NBT.6. 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, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. |

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| <b>Student Friendly Language:</b>  |
| I can solve division problems with up to four-digit dividends and one-digit divisors.<br>I can use equations, arrays, and/or area models to explain my calculations. |

| <b>Know<br/>(Factual)</b>  | <b>Understand<br/>(Conceptual)</b><br>The students will understand that:   | <b>Do<br/>(Procedural, Application, Extended Thinking)</b>  |
|--|--|---|
| <ul style="list-style-type: none"> <li>• Strategies can be used to divide.</li> <li>• Multiplication and division are inverse operations.</li> <li>• Quotients can have remainders.</li> </ul> | <p>Explaining your work leads to deeper understanding.</p> <p>Multiplication and division can be used to solve each other.</p> <p>There is a relationship between the properties of operations and solutions of division problems.</p> <p>Equations, rectangular arrays, and area models can be used to find whole number quotients.</p> | <p>Apply strategies based on place value to solve division problems.</p> <p>Apply properties of operations, such as multiplication, to solve division problems.</p> <p>Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> |

|  |           |            |          |         |          |       |            |  |
|--|-----------|------------|----------|---------|----------|-------|------------|--|
| <b>Key Vocabulary:</b>   |           |            |          |         |          |       |            |  |
| <table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">quotient</td> <td style="width: 25%;">remainder</td> <td style="width: 25%;">dividend</td> <td style="width: 25%;">divisor</td> </tr> <tr> <td>equation</td> <td>array</td> <td>area model</td> <td></td> </tr> </table> | quotient  | remainder  | dividend | divisor | equation | array | area model |  |
| quotient   | remainder | dividend   | divisor  |         |          |       |            |  |
| equation   | array     | area model |          |         |          |       |            |  |
| <b>Relevance and Applications:</b> 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”?                         |           |            |          |         |          |       |            |  |
| Making equal groups, figuring amount of busses needed for a trip, how many servings can come from a product, how many tables would be needed to seat guests  |           |            |          |         |          |       |            |  |