2014-2015

1st Grade Math Unit of Study

Critical Area One: Chapters 1 - 5 - Developing understanding of addition, subtraction, and strategies for addition and subtraction within 20.

<table>
<thead>
<tr>
<th>Suggested Number of Days</th>
<th>Days: 64 (10 Min Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning</td>
<td></td>
</tr>
<tr>
<td>Understandings (U)</td>
<td>Essential Question(Q)</td>
</tr>
<tr>
<td>Students will understand that...</td>
<td>Students will keep considering...</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>• putting/joining (+) together is only one type of addition.</td>
<td>• how can you model addition and subtraction to 20?</td>
</tr>
<tr>
<td>• taking/separating (-) is only one type of subtraction.</td>
<td>• what strategies can you use to solve addition and subtractions problems?</td>
</tr>
<tr>
<td>• addition and subtraction are inversely related.</td>
<td>• how can relating addition and subtraction help you to learn and understand facts within 20?</td>
</tr>
<tr>
<td>• different strategies can be used to solve an addition or subtraction problem.</td>
<td></td>
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<tr>
<td>• patterns can be used to identify the structure of numbers.</td>
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</tbody>
</table>

Acquisition

Students will know (Knowledge)

• how to represent and solve problems involving addition and subtraction.
• understand and apply properties of operations and the relationship between addition and subtraction
• develop and use strategies for whole number computations with a focus on addition and subtraction.

Students will be skilled and be able to (Demonstrate)

• choose a strategy to solve an addition or subtraction problem
• model addition and subtraction with base ten blocks
• draw a diagram to solve addition and subtraction problems to 20
• use the Additive Identity Property of Addition and the Commutative Property of Addition.
• develop fluency with basic number combinations for addition and subtraction.
• use a variety of methods (objects, mental, estimation) to compute addition and subtraction problems
Critical Area 2: Chapters 6-8- Developing understanding of whole number relationships and place value, including grouping in tens and ones.

<table>
<thead>
<tr>
<th>Suggested number of days:</th>
<th>42 Days</th>
</tr>
</thead>
</table>

### Meaning

#### Understandings (U)

Students will understand...

- sets of 10 can be perceived as single entities
- the positions of digits in numbers determine what value they represent
- there are patterns in the way numbers are formed
- the groupings of ones, tens, and hundreds can be taken apart in different ways
- the relation of the three components of place value-base ten concepts, oral names for numbers, and the written names for numbers
- language such as *greater than, less than, and equal to* can be used to relate, compare and order numbers
- the language of comparison relationships can be expressed symbolically
- that two numbers added together are called a *sum*
- addition is not just “*putting together*” and subtraction is not just “*taking away*”

#### Essential Question (Q)

Students will keep considering...

- how do you use place value to model, read, and write numbers to 120?
- how do you use place value to compare numbers?
- how can you add and subtract 2 digit numbers?

### Acquisition

#### Students will know (Knowledge)

- extend the counting system
- understand place value
- use place value understanding and properties of operations to add and subtract
- add and subtract within 20

#### Students will be skilled and be able to (Demonstrate)

- count by ones to extend a counting sequence
- count by tens from any number up to 120
- use a hundreds chart to count by 1’s and 10’s
- identify patterns in counting on a
hundreds chart
- write and model numbers in different ways (1 ten and 4 ones, 14 ones, 10 + 4)
- use models and base tens blocks to model, read, and write numbers to 120
- use models and symbols to determine which numbers are greater and which are less
- use problem solving strategies to add, subtract, and compare numbers
- find 10 more or 10 less than a given two digit number
- use models, hundreds charts, base ten blocks and drawings to find sums and differences
- combine ones to make a ten in order to find sums
- use a hundreds chart to show the relationship between addition and subtraction

Critical Area 3: Chapters 9-10- Developing understanding of linear measurement and measuring lengths as iterating length units.

<table>
<thead>
<tr>
<th>Suggested Number of Days</th>
<th>Days: 23</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meaning</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Understandings (U)**
Students will understand that...

- charts and graphs contain information/data
- there are many different ways to represent data/information
- a clock/watch is a tool to measure time.
- measuring the length of objects can be used to compare and order.
- a clock has different parts (minute and hour hand)
- the numbers on the clock represent hour and minute increments.

**Essential Question(Q)**
Students will keep considering...

- how can information/data be represented using charts and graphs?
- how can charts and graphs be used to interpret data?
- how does length and time relate to units of measure?
- how does a clock measure time?
<table>
<thead>
<tr>
<th>Acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students will know (Knowledge)</strong></td>
</tr>
<tr>
<td>• how to represent and interpret data</td>
</tr>
<tr>
<td>• how to measure, order and compare objects by length</td>
</tr>
<tr>
<td>• how to tell and write time in hours and half hours using analog and digital clocks</td>
</tr>
<tr>
<td><strong>Students will be skilled and be able to (Demonstrate)</strong></td>
</tr>
<tr>
<td>• write and tell times to the hour and half hour using analog and digital clocks.</td>
</tr>
<tr>
<td>• use a clock (digital or analog) to tell time</td>
</tr>
<tr>
<td>• measure, order and compare objects.</td>
</tr>
<tr>
<td>• use models to solve measurement problems</td>
</tr>
<tr>
<td>• analyze, interpret data shown in a chart or graph</td>
</tr>
<tr>
<td>• make a picture and bar graph and tally chart to convey data/information.</td>
</tr>
<tr>
<td>• use strategies using a graph to solve problems</td>
</tr>
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</table>

**Critical Area 4 Chapters 11-: Reasoning about attributes of, and composing and decomposing geometric shapes**

| Suggested number of days: | 30 Days |

<table>
<thead>
<tr>
<th>Meaning</th>
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</thead>
<tbody>
<tr>
<td><strong>Understandings (U)</strong></td>
</tr>
<tr>
<td>Students will understand…</td>
</tr>
<tr>
<td>• that shapes can be defined by their attributes such as number and shape of flat surfaces</td>
</tr>
<tr>
<td>• how to name shapes based on their defining attributes</td>
</tr>
<tr>
<td>• how to compare and sort shapes based on their attributes</td>
</tr>
<tr>
<td>• how to compose and decompose shapes</td>
</tr>
<tr>
<td>• how to partition shapes into equal parts</td>
</tr>
<tr>
<td><strong>Essential Question(Q)</strong></td>
</tr>
<tr>
<td>Students will keep considering…</td>
</tr>
<tr>
<td>• how do you identify and describe three-dimensional shapes?</td>
</tr>
<tr>
<td>• how can you sort and describe two-dimensional shapes?</td>
</tr>
</tbody>
</table>

**Acquisition**

| **Students will know (Knowledge)** |
| • shapes and their attributes  |
| • how to sort shapes  |
| • how to partition shapes  |
| **Students will be skilled and be able to (Demonstrate)** |
| • identify and sort two and three dimensional shapes according to their attributes  |
• compose a new shape by combining three-dimensional shapes or two-dimensional shapes
• use composite three-dimensional or two-dimensional shapes to make new shapes
• identify three-dimensional or two-dimensional shapes used to make a composite shape
• identify two-dimensional shapes on three-dimensional shapes
• Identify equal and unequal parts in two-dimensional shapes
• partition circles and rectangles into halves and fourths

**Standard for Mathematical Practice (SMP)**

MP.1 Make sense of problems and persevere in solving them.
MP.2 Reason abstractly and quantitatively.
MP.3 Construct viable arguments and critique the reasoning of others.
MP.4 Model with mathematics.
MP.5 Use appropriate tools strategically.
MP.6 Attend to precision.
MP.7 Look for and make use of structure.
MP.8 Look for and express regularity in repeated reasoning