

# MATH CURRICULUM

Grade 1



## Principle Academy Charter School

### Mathematics-Grade 1

#### MISSION

The Principle Academy Charter School will show mastery of standards-driven, international, college preparatory curriculum, delivered through proven research-based instruction. Students will develop positive values and social behaviors through a nurturing school environment.

#### PHILOSOPHY

The philosophy of Principle Academy Charter School (“PAC”) is built on (1) the belief that student outcomes are paramount, and (2) the understanding that a strong foundation is necessary to ensure sustained, long-range success for all students. At our core, we believe that students must develop positive values and social behaviors through a nurturing school climate and student cultural activities. Our educational approach is classroom-based, and students receive all instruction from certified teachers within the school building. Our educational approach is grounded in a student-centered program where all curriculum, assessments, operational decisions, and parental and/or community involvement is designed to ensure that school time is focused on the student and his/her learning and development.

PAC executes its mission and philosophy by providing all children who enroll in PAC—regardless of the student’s background, socio-economic status, or academic record—with a world-class public education in a student-centered setting that emphasizes civic responsibility and personal development, as well as academic rigor. Each letter of CHARTER represents a **PRINCIPLE**, *i.e.*, a core value, of PAC:

- C - Civility (Kindness)
- H - Honesty
- A- Academics
- R - Respect
- T - Togetherness
- E - Empowerment
- R – Responsibility

PAC implements standards-driven curriculum, including clearly defined student-learning objectives that exceed the NJ Performance Framework for both grade and content level requirements. Our curriculum is aligned with the Common Core State Standards and the New Jersey Student Learning Standards (NJSLS). Our curriculum not only ensures that students are prepared for success in college, but also life beyond college

PAC has adopted the *Ready Mathematics* program (<https://www2.curriculumassociates.com/products/ready-new-jersey-mathematics.aspx>) and, likewise, has developed a new curriculum in compliance with the New Jersey Student Learning Standards and Curriculum Frameworks. Our curriculum is designed to develop strong mathematical thinkers, focus on conceptual understanding using real-world problem solving, and help students become active participants in their own learning.

**Principle Academy Charter School**  
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**PAC LEADERSHIP TEAM**

Kenneth Silver	School Director
Alvaro Cores	Assistant School Director
Greg Freelon	School/Student Liaison
Carol Spina	Dean of Instruction
Cyndee' Phoenix	Dean of Community Engagement
Paul A, Cicchini	Dean of Special Education

**PAC SCHOOL BOARD**

Peter Caporilli	President
Rolanda Brewer	Vice President
Ed Blake	
Stacey Zacharoff	
Kelli Prinz	Attorney
Michael Falkowski	SBA

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Addition/subtraction strategies:

- One-More-Than & Two-More Than
- Facts with Zero
- Doubles 4. Near Doubles
- Doubles plus 1 – Ex.  $6+7 = 6+6+1$
- Doubles plus 2 – Ex.  $6+8 = 6+6+2$
- Making tens – Ex.  $9+7 = 10+6$
- Using relationships – Ex.  $5+7=12$ , so  $7+5=12$ ,  $12-5=7$  and  $12-7=5$

Multiplication/division strategies:

- Doubles (facts with a factor of 2)
- Fives Facts
- Zeros and Ones
- Helping Facts

Fraction and fraction/ decimal/ percent strategies:

- Use models (area, length, & set) to build conceptual understanding that an equivalency means two amounts are the same
- Be patient with representations prior to rushing to teach rules for finding equivalent fractions and/or equivalent fractions - decimals - percent

Operations with integers strategies:

- Use models to quantity (number) and opposite (direction) to build a conceptual basis for procedural rules. Counters and number lines are two effective models for integer operations.
- Maintain quantity while changing direction to expose student misconceptions  $-1 + -2$  cannot be the same as  $-1 + 2$  because the direction of the 2 is different in each problem.
- Emphasize explanations prior to expecting students to follow procedural rules.

These lists are by no means exhaustive. If you use other strategies to help your students learn their basic facts, please continue to use them.

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Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p><b><u>Unit 1</u></b></p> <p><b>Add and Subtract within 10</b></p>	<ul style="list-style-type: none"> <li>■ 1.OA.A.1*</li> <li>■ 1.OA.B.3*</li> <li>■ 1.OA.B.4</li> <li>■ 1.OA.C.5</li> <li>■ 1.OA.D.7*</li> <li>■ 1.OA.D.8*</li> <li>■ 1.NBT.A.1*</li> </ul>	<ul style="list-style-type: none"> <li>• Represent and solve problems involving addition and subtraction</li> <li>• Understand and apply properties of operations and the relationship between addition and subtraction</li> <li>• Add and subtract within 10</li> <li>• Work with addition and subtraction equations</li> <li>• Extend the counting sequence</li> </ul>	<p>MP.1 Make sense of problems and persevere in solving them.</p>
<p><b><i>Unit 1: Suggested Open Educational Resources</i></b></p>	<p><a href="#">1.OA.A.1 Sharing Markers</a>  <a href="#">1.OA.B.3 Domino Addition</a>  <a href="#">1.OA.B.4 Cave Game Subtraction</a>  <a href="#">1.OA.D.7 Equality Number Sentences</a>  <a href="#">1.OA.D.8 Kiri's Mathematics Match Game</a>  <a href="#">1.NBT.A.1 Hundred Chart Digit Game</a></p>		<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p>
<p><b><u>Unit 2</u></b></p> <p><b>Add and Subtract within 20</b></p>	<ul style="list-style-type: none"> <li>■ 1.OA.A.1*</li> <li>■ 1.OA.D.7</li> <li>■ 1.OA.D.8</li> <li>■ 1.OA.B.3*</li> <li>■ 1.OA.C.6*</li> <li>■ 1.OA.A.2</li> <li>□ 1.MD.C.4</li> <li>■ 1.NBT.B.2a-b</li> <li>■ 1.NBT.B.3</li> <li>■ 1.NBT.A.1*</li> </ul>	<ul style="list-style-type: none"> <li>• Represent and solve problems involving addition and subtraction</li> <li>• Work with addition and subtraction equations</li> <li>• Understand and apply properties of operations and the relationship between addition and subtraction</li> <li>• Add and subtract within 20</li> <li>• Represent and interpret data</li> <li>• Understand place value</li> <li>• Extend the counting sequence</li> </ul>	<p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>
<p><b><i>Unit 2: Suggested Open Educational Resources</i></b></p>	<p><a href="#">1.OA.A.1 School Supplies</a>  <a href="#">1.OA.D.7 Valid Equalities?</a>  <a href="#">1.OA.D.8 Find the Missing Number</a>  <a href="#">1.OA.B.3 Doubles?</a>  <a href="#">1.OA.C.6 \$20 Dot Map</a>  <a href="#">1.OA.A.2 Daisies in vases</a>  <a href="#">1.NBT.B.2 Roll &amp; Build</a>  <a href="#">1.NBT.B.3 Ordering Numbers</a>  <a href="#">1.NBT.A.1 Start/Stop Counting 2</a></p>		<p>MP.8 Look for and express regularity in repeated reasoning.</p>

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Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p><b>Unit 3</b></p> <p><b>Place Value, Measurement &amp; Shapes</b></p>	<ul style="list-style-type: none"> <li>■ 1.NBT.B.2c</li> <li>■ 1.NBT.C.4*</li> <li>■ 1.NBT.C.5</li> <li>■ 1.NBT.C.6</li> <li>■ 1.MD.A.1</li> <li>■ 1.MD.A.2</li> <li>● 1.MD.B.3</li> <li>■ 1.OA.C.6*</li> </ul>	<ul style="list-style-type: none"> <li>• Understand place value</li> <li>• Use place value understanding and properties of operations to add and subtract</li> <li>• Measure lengths indirectly by iterating length units</li> <li>• Tell and write time</li> <li>• Add and subtract within 20</li> </ul>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p>
<p><i>Unit 3: Suggested Open Educational Resources</i></p>	<p><a href="#">1.NBT.C.4 Ford and Logan Add 45+36</a></p> <p><a href="#">1.NBT.C.5 Number Square</a></p> <p><a href="#">1.MD.A.2 Measure Me!</a></p> <p><a href="#">1.MD.A.2 Measuring Blocks</a></p> <p><a href="#">1.MD.A.2 Growing Bean Plants</a></p> <p><a href="#">1.MD.B Making a clock</a></p> <p><a href="#">1.OA.C.6 Making a ten</a></p>		<p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p>
<p><b>Unit 4</b></p> <p><b>Reason with Shapes and their Attributes</b></p>	<ul style="list-style-type: none"> <li>● 1.G.A.1</li> <li>● 1.G.A.2</li> <li>● 1.G.A.3</li> <li>■ 1.OA.A.1*</li> <li>■ 1.OA.C.6*</li> <li>■ 1.NBT.A.1*</li> <li>■ 1.NBT.C.4*</li> </ul>	<ul style="list-style-type: none"> <li>• Reason with shapes and their attributes</li> <li>• Represent and solve problems involving addition and subtraction.</li> <li>• Add and subtract within 20</li> <li>• Extend the counting sequence</li> <li>• Use place value understanding and properties of operations to add and subtract</li> </ul>	<p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>
<p><i>Unit 4: Suggested Open Educational Resources</i></p>	<p><a href="#">1.G.A.1 All vs. Only some</a></p> <p><a href="#">1.G.A.1 3-D Shape Sort</a></p> <p><a href="#">1.G.A.2 Make Your Own Puzzle</a></p> <p><a href="#">1.G.A.2 Overlapping Rectangles</a></p> <p><a href="#">1.G.A.3 Equal Shares</a></p> <p><a href="#">1.OA.A.1 Twenty Tickets</a></p> <p><a href="#">1.NBT.A.1 Where Do I Go?</a></p>		<p>MP.8 Look for and express regularity in repeated reasoning.</p>

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Unit 1 Grade 1				
Content Standards	Suggested Mathematical Practices	Critical Knowledge & Skills	Resources	Days
<p>■ 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, <i>e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</i></p>	<p>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.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Symbol (unknowns) can be in any position.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>add, using objects and drawings, to solve word problems involving situations of adding to and putting together.</li> <li>subtract, using objects and drawings, to solve world problems involving situations of taking from and taking apart.</li> </ul> <p>Learning Goal 1: Use addition and subtraction <u>within 10</u> to solve problems, including word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions.</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 3- Add and Subtract in Word Problems</p> <p>Lesson 5- Subtract to Compare in Word Problems</p>	10
<p>■ 1.OA.B.3. Apply properties of operations as strategies to add and subtract. <i>Examples: If <math>8 + 3 = 11</math> is known, then <math>3 + 8 = 11</math> is also known. (Commutative property of addition.) To add <math>2 + 6 + 4</math>, the second two numbers can be added to make a ten, so <math>2 + 6 + 4 = 2 + 10 = 12</math>. (Associative property of addition.)</i> <i>(Students need not use formal terms for these properties)</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Knowing <math>4 + 3</math> means that <math>3 + 4</math> is also known (commutative property/fact families).</li> <li>When adding, the numbers need not be added in any particular order.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>add and subtract, within 10, using properties of operations as strategies (commutative property).</li> </ul> <p>Learning Goal 2: Apply properties of operations (commutative property) as strategies to add or subtract <u>within 10</u>.</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 8- Number Partners 8 and 9</p>	5
<p>■ 1.OA.B.4. Understand subtraction as an unknown-addend problem. <i>For example, subtract <math>10 - 8</math> by finding the number that makes 10 when added to 8</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Subtraction can be represented as an unknown-addend problem.</li> <li>Finding 9 minus 3 means solving <math>? + 3 = 9</math> or <math>3 + ? = 9</math> (fact families).</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>represent subtraction as an unknown addend problem.</li> <li>solve subtraction problems, <u>within 10</u>, using unknown addends.</li> </ul>	<p>Ready Math</p> <p>Lesson 4- Understand Missing Addends</p>	4

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Unit 1 Grade 1				
Content Standards	Suggested Mathematical Practices	Critical Knowledge & Skills	Resources	Days
		Learning Goal 3: Solve subtraction problems, <u>within 10</u> , by representing subtraction as an unknown added problem and finding the unknown addend		
<p>■ 1.OA.C.5. Relate counting to addition and subtraction (e.g., by counting 2 to add 2).</p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Counting can be used to add and subtract.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>count on to add.</li> <li>count back to subtract.</li> </ul> <p>Learning Goal 4: Count on to add and count backwards to subtract to solve addition and subtraction problems <u>within 10</u>.</p>	<p>Ready Math</p> <p>Lesson 1- Count On to Add</p> <p>Lesson 18- The 120 Chart</p>	10
<p>■ 1.OA.D.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? <math>6 = 6</math>, <math>7 = 8 - 1</math>, <math>5 + 2 = 2 + 5</math>, <math>4 + 1 = 5 + 2</math>.</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>The meaning of the equal sign</li> <li>True and false statements</li> <li>The expression can be on the right side of the equal sign (e.g. <math>7 = 8 - 1</math>).</li> <li>Both the left and right side of the equal sign may contain expressions (e.g. <math>5 + 2 = 1 + 4</math>).</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>determine if addition equations are true or false.</li> <li>determine if subtraction equations are true or false.</li> </ul> <p>Learning Goal 5: Determine if addition and subtraction equations, <u>within 10</u>, are true or false.</p>	<p>Ready Math</p> <p>Lesson 10 Understand the Equal Sign</p>	4
<p>■ 1.OA.D.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 + ? = 11</math>, <math>5 = \_ - 3</math>, <math>6 + 6 = \_</math>.</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>determine the unknown number that makes an equation true.</li> <li>solve addition or subtraction equations by finding the missing whole number.</li> </ul> <p>Learning Goal 6: Solve addition and subtraction equations, <u>within 10</u>, by finding the missing whole number in any position.</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 7- Number Partners 6 and 7</p>	5



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Unit 1 Grade 1				
Content Standards	Suggested Mathematical Practices	Critical Knowledge & Skills	Resources	Days
<p>■ 1.NBT.A.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral</p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Number names and the count sequence up to 100</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>count orally by ones <u>up to 100.</u></li> <li>count up to 100 beginning at any number less than 100.</li> <li>read numerals up to 100.</li> <li>write numerals up to 100.</li> <li>represent a number of objects up to 100 with a written number.</li> </ul> <p>Learning Goal 7: Count to 100 orally, read and write numerals, and write numerals to represent the number of objects (<u>up to 100</u>).</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 18 The 120 Chart</p>	5

**Unit 1 Grade 1 What This May Look Like**

School/District Formative Assessment Plan	School/District Summative Assessment Plan
<ul style="list-style-type: none"> <li>iReady Assessments</li> <li>Student Conferencing</li> <li>Observation Checklist</li> <li>Anecdotal Notes</li> <li>Homework</li> <li>Running Records</li> <li>Student Self-Evaluations</li> <li>Short constructed response questions</li> <li>Multiple choice questions</li> <li>Academic/Domain specific vocabulary</li> <li>Quizzes</li> <li>Math Journal</li> <li>Exit ticket</li> <li>Accountable talk</li> </ul>	<ul style="list-style-type: none"> <li>Unit Benchmark</li> <li>Chapter Tests</li> <li>iReady Assessments</li> <li>State Assessments</li> </ul>

**Focus Mathematical Concepts**

**Prerequisite skills:**

1.OA.A.1\*

*K.OA.A.2-Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.*

1.OA.B.3\*

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*K.OA.A.2-Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.*

1.OA.B.4

*K.OA.A.2-Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.*

1.OA.C.5

*K.CC.B.4-Understand the relationship between numbers and quantities; connect counting to cardinality.*

1.NBT.A.1\*

*K.CC.A.1-Count to 100 by ones and by tens.*

**Common Misconceptions:**

1.OA.1 The vocabulary of comparison situations can cause confusion for students. While the words more than implies addition and fewer than implies subtraction, in comparison situations, that is not always the case. Look at this example: Patty has 16 tickets for the raffle. She has 8 fewer than Marcus. How many tickets does Marcus have? Although the problem includes the word fewer, a student would actually add  $16 + 8$  to find the solution. Modeling with concrete objects to use the information by showing Patty's tickets and 8 more will help students realize that this is actually an addition problem.

1.OA.3 Although subtraction is not commutative, it is important not to contribute to a potential student misconception by saying that you cannot take a larger number from a smaller number. It is appropriate to say that  $8 - 5 \neq 5 - 8$ . It is possible to take a larger number from a smaller number. The result will be a negative number. Integers are not introduced until middle school.

1.OA.5 Watch for students who may double count a number when adding or subtracting. This may occur with physical objects, pictures or using a hundreds chart. For example, if a student is adding  $6 + 4$ , she may begin with the 6 (6, 7, 8, 9) with a result of 9 rather than counting on to the 6 (7, 8, 9, 10). The same may happen in subtraction. If a student is counting to subtract  $8 - 5$ , he may count the 8 as part of the count (8, 7, 6, 5, 4) with a result of 4 rather than subtracting from the 8 (7, 6, 5, 4, 3) to get the accurate amount. Not only should this be pointed out to students, but it is essential also to provide more explicit experiences with concrete materials in which students are adding on the given addend or subtracting from the total.

1.OA.6 Continue to watch for students who are double counting a number when adding or subtracting.

1.OA.7 Some students may develop the misconception that the equal sign indicates the answer comes next to calls for the action of doing the mathematical operation. When students use calculators, pressing the equal key results in the answer, which can also cause this misconception. Students should have experiences early on that reinforce that the equal sign indicates both sides of the equation represent the amount. Using a balance scale or picture of a balance scale with the equal sign on the center helps students to understand that the equal sign on the enter helps students understand that the equal sign means both sides are balanced. As teachers model writing equations or give students examples to solve, it is important to repeat that the equal sign means "the same as." It is appropriate in early experiences using the equal sign to have students read it as "is the same as." For example, students would read  $10 - 7 = 3$  as "10 minus 7 is the same as 3."

1.OA.8 Although students may be able to model problem situations with materials and pictures, the transition to writing equations using symbols may be more difficult for them, particularly when their reasoning requires finding a missing addend. Asking students to explain their reasoning as they solve the problem with materials will help them to connect what they have done with the materials to the symbolic equation. Be sure that students have multiple experiences solving equations in which the unknown is in different positions.

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$3 + 8 = \underline{\quad}$      $3 + \underline{\quad} = 11$      $\underline{\quad} + 3 = 11$      $11 - 3 = \underline{\quad}$      $11 - \underline{\quad} = 8$      $\underline{\quad} - 3 = 8$

1.NBT.A.1\*

1.NBT.1 It is not expected that students develop an understanding of place value with this standard. However, watch for students who reverse digits in writing the numeral or do not demonstrate an understanding that 21 does not have the same value as 12. When reversals occur, have students model each number, using straws or linking cubes to reinforce the place value of digits and to help differentiate between the numbers. 1.NBT.4 Students who do not know basic facts may be inaccurate computing with two-digit numbers. As those students continue to work on facts, physical models will help in adding accurately. Be sure that all students have ample experience with adding physical models on place value charts, counting on by benchmark numbers (tens and ones), using a hundreds chart, and using ten frames as appropriate. Make explicit connections among written physical models, strategies, and written formats. Regrouping (composing tens from ones) when adding two-digit numbers is included in this standard. It is appropriate for students to use physical models for these examples and explain their reasoning, explicitly connecting physical models with symbolic notation (written equations).

**Number Fluency:**

1.OA.C.6 Add and Subtract within 10

**District/School Tasks**

ELA Connections:

- Math Journals
- Math Word Wall
- Math Storytelling
- Think-Write-Pair-Share
- Prompts use successful pre-writing strategies such as:
  - Make a web.
  - Draw a picture and label.
  - Write a definition in your own words.
  - Create examples of the skill/concept and explain.
  - Write about a real-life use of this math concept or skill.
  - Connect the concept/skill to concepts/skills you already learned and use.
  - Reflect on your understanding of this concept/skill on a scale of 1-5 and explain.
  - Create a K-W-L chart

International/ Global Activities-

<https://populationeducation.org/teacher-resources/>

Scholastic

<http://teacher.scholastic.com/max/index.htm>

**District/School Primary and Supplementary Resources**

Fact Fluency Resources:

- <https://www.factmonster.com/math/flashcards>
- <https://kahoot.com/welcomeback/>
- <https://quizlet.com/>
- <https://www.socrative.com/>
- <https://www.funbrain.com/games/math-baseball>
- <https://www.multiplication.com/games/all-games>
- <https://mathfactspro.com/math-fact-fluency-game/>

Math Fluency Classroom Ideas:

- <https://onestopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html>
- <https://www.weareteachers.com/15-fun-ways-to-practice-math/>

Resources

- <https://njctl.org>
- <https://www.engageny.org/>
- <https://www.illustrativemathematics.org/content-standards>
- <http://www.k-5mathteachingresources.com/>
- <https://www.mathplayground.com/>

**Instructional Best Practices and Exemplars**

## Principle Academy Charter School

### Mathematics-Grade 1

- Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
- Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
- Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.
- Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
- Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
- Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
- Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
- Identifying Similarities and Differences
- Reinforcing Effort and Providing Recognition
- Homework and Practice
- Nonlinguistic Representations
- Cooperative Learning
- Setting Objectives and providing Feedback
- Gradual Release of Responsibility
- Managing response rates
- Checks for understanding
- Coaching
- Visuals
- Collaborative problem solving
- Active engagement strategies
- Establishing metacognitive reflection and articulation

#### **21<sup>st</sup> Century Life and Careers Standards**

##### **Career Ready Practices:**

CRP2: Apply appropriate academic and technical skills.

CRP4: Communicate clearly and effectively and with reason.

CRP6: Demonstrate creativity and innovation.

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

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CRP11: Use technology to enhance productivity.

CRP12: Work productively in teams while using cultural global competence

**Personal Financial Literacy - Income And Careers**

9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

9.1.4.A.2 Identify potential sources of income.

**Career Awareness, Exploration, And Preparation - Career Awareness**

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

**Technology Standards**

8.1 Educational Technology: All students will use digital tools to assess, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. Technology Operations and Concepts:

8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.

8.1.2.A.2 Create a document using a word processing application.

8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of each.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual Environments (i.e. games, museums)

8.1.2.A.5 Enter information into a spreadsheet and sort the information.

8.1.2.A.6 Identify the structure and components of a database.

8.1.2.A.7 Enter information into a database or spreadsheet and filter the information.

B. Creativity and Innovation

8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

C. Communication and Collaboration:

8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.

D. Digital Citizenship

8.1.2.D.1 Develop an understanding of ownership of print and non-print information.

E: Research and Information Fluency:

8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.

F. Critical thinking, problem solving, and decision making:

8.1.2.F.1 Use geographic mapping tools to plan and solve problems.

8.2 Technology, Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. The Nature of Technology: Creativity and Innovation

8.2.2.A.1 Define products produced as a result of the technology or of nature.

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- 8.2.2.A.2 Describe how designed products and systems are useful at school, home or work.
- 8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.
- 8.2.2.A.4 Choose a product to make and plan the tools and material needed.
- 8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

**Accommodations/ Differentiation**

- Modify activities/assignments/projects/assessments
- Breakdown activities/assignments/projects/assessments into manageable units
- Additional time to complete activities/assignments/projects/assessments
- Provide an option for alternative activities/assignments/projects/assessments
- Adjust Pacing of Content
- Small Group Intervention/Remediation
- Individual Intervention/Remediation
- Guided Notes
- Graphic Organizers

***IEP-Follow IEP Plan which may contain some of the following examples...***

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video

***504-Follow 504 Plan which may contain some of the following examples...***

- In class/pull out support with special ed teacher

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- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

***ELL***

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

All WIDA Can Do Descriptors can be found at this link: [https://www.wida.us/standards/CAN\\_DOs/](https://www.wida.us/standards/CAN_DOs/)

WIDA Can Do Descriptors:

- Listening
- Speaking
- Reading
- Writing

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Oral Language

**ELL Strategies**

Develop Meaning

Elicit Prior Knowledge

Identify Relationships

Rephrase -Scaffold Language

**At Risk Students**

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

**Gifted & Talented**

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

**Unit 2 Grade 1**

<b>Content Standards</b>		<b>Suggested Standards for Mathematical Practice</b>	<b>Critical Knowledge &amp; Skills</b>	<b>Resources</b>	<b>Days</b>
■	1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively.	Concept(s): <ul style="list-style-type: none"> <li>• Symbols can be used to represent unknown numbers.</li> </ul>	<i>Problems should be embedded in daily lessons throughout the school year.</i>	Repeated



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Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>together, taking apart, and comparing, with unknowns in all positions, <i>e.g.</i>, <i>by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</i></p>	<p>MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.8 Look for and express regularity in repeated reasoning.</p>	<ul style="list-style-type: none"> <li>The symbol (unknowns) can be in any position.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>add, using drawings and equations, to solve word problems involving situations of adding to and putting together.</li> <li>subtract, using drawings and equations, to solve word problems involving situations of taking from and taking apart.</li> </ul> <p>Learning Goal 1: Use addition and subtraction <u>within 20</u> to solve problems, including word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions.</p>		
<p>■ 1.OA.D.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? <math>6 = 6</math>, <math>7 = 8 - 1</math>, <math>5 + 2 = 2 + 5</math>, <math>4 + 1 = 5 + 2</math>.</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>determine if addition equations are true or false</li> <li>determine if subtraction equations are true or false</li> </ul> <p>Learning Goal 2: Determine if addition and subtraction equations, <u>within 20</u>, are true or false.</p>		Repeated
<p>■ 1.OA.D.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 + ? = 11</math>, <math>5 = \_ - 3</math>, <math>6 + 6 = \_</math>. *(benchmarked)</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>determine the unknown number that makes an equation true.</li> <li>solve addition or subtraction equations by finding the missing whole number.</li> </ul> <p>Learning Goal 3: Solve addition and subtraction equations, <u>within 20</u>, by finding the</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p>	Repeated

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Unit 2 Grade 1				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
		missing whole number in any position.		
<p>■ 1.OA.B.3. Apply properties of operations as strategies to add and subtract. <i>Examples: If <math>8 + 3 = 11</math> is known, then <math>3 + 8 = 11</math> is also known. (Commutative property of addition.) To add <math>2 + 6 + 4</math>, the second two numbers can be added to make a ten, so <math>2 + 6 + 4 = 2 + 10 = 12</math>. (Associative property of addition.) (Students need not use formal terms for these properties)</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>When adding, the numbers need not be added in order.</li> <li>To add <math>2 + 6 + 4</math>, the second two numbers can be added first to make a ten. [e.g., <math>2 + 6 + 4 = 2 + 10 = 12</math> (Associative Property)]</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>add and subtract, within 20, using properties of operations as strategies. (Associative Property)</li> </ul> <p>Learning Goal 4: Apply properties of operations as strategies (Associative Property) to add or subtract <u>within 20</u>.</p>		Repeated
<p>■ 1.OA.C.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as <u>counting on</u>; <u>making ten</u> (e.g., <math>8 + 6 = 8 + 2 + 4 = 10 + 4 = 14</math>); <u>decomposing a number leading to a ten</u> (e.g., <math>13 - 4 = 13 - 3 - 1 = 10 - 1 = 9</math>); <u>using the relationship between addition and subtraction</u> (e.g., knowing that <math>8 + 4 = 12</math>, one knows <math>12 - 8 = 4</math>); and <u>creating equivalent but easier or known sums</u> (e.g., adding <math>6 + 7</math> by creating the known equivalent <math>6 + 6 + 1 = 12 + 1 = 13</math>).</p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Different strategies can be used to add and subtract.</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>add and subtract <u>within 20</u>, using the following strategies:                             <ul style="list-style-type: none"> <li>counting on;</li> <li>making ten;</li> <li>composing numbers;</li> <li>decomposing numbers leading to a ten;</li> <li>relationship between addition and subtraction, and</li> <li>creating equivalent but easier or known sums.</li> </ul> </li> <li>fluently add or subtract whole numbers <u>within 20</u>.</li> </ul> <p>Learning Goal 5: Add and subtract whole numbers</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 2 Count on to Subtract</p> <p>Lesson 6- Doubles and Doubles Plus 2</p> <p>Lesson 9- Number Partner for 10</p> <p>Lesson 11 Facts I Know</p>	20

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Unit 2 Grade 1			Resources	Days
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
		<p><u>within 20</u> using various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc.</p>		
<p>■ 1.OA.A.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, <i>e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem</i></p>	<p>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.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Symbols can be used to represent unknown numbers.</li> <li>• The symbol (unknowns) can be in any position.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• use <i>objects and drawings</i> to represent word problems that call for less than or equal to 20.</li> </ul> <p>Learning Goal 6: Solve addition word problems with three whole numbers with sums less than or equal to 20.</p>	<p>Ready Math  Lesson 15 Add Three Numbers</p>	5
<p>□ 1.MD.C.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</p>	<p>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.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Numbers can be organized to represent data.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• organize objects, representing data, in up to three categories.</li> <li>• represent data with objects, drawings, or numerals, in up to three categories.</li> <li>• ask and answer questions about:                             <ul style="list-style-type: none"> <li>– the total number of data points;</li> <li>– the number of data points in each category, and</li> <li>– how many more or less are in one category than in another.</li> </ul> </li> </ul> <p>Learning Goal 7: Organize, represent, and interpret</p>	<p>Ready Math  Lesson 29- Sort and Count Lesson 30- Compare Data</p>	10

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Unit 2 Grade 1				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
		data with up to three categories, compare the number of data points among the categories, and find the total number of data points.		
<p>■ 1.NBT.B.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:</p> <p>1.NBT.B.2. a. 10 can be thought of as a bundle of ten ones — called a "ten."</p> <p>1.NBT.B.2. b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Two digits represent amounts of tens and ones.</li> <li>10 can be thought of as a bundle of ten ones — called a <i>ten</i>.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>compose numbers to 20.</li> <li>decompose numbers to 20.</li> <li>identify the value of the number in the tens or ones place.</li> </ul> <p>Learning Goal 8: Compose and decompose numbers to 20 to identify the value of the number in the tens and ones place.</p>	<p>Ready Math</p> <p>Lesson 12- Understand Teen Numbers</p> <p>Lesson 17- Understand Teens</p> <p>Lesson 21- Understand Tens and Ones</p>	12
<p>■ 1.NBT.B.3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, and <math>&lt;</math>.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Use place value understanding to compare two digit numbers.</li> <li>Comparing numbers using symbols.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>use the meaning of tens and ones digits to compare 2 two-digit numbers using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols.</li> </ul> <p>Learning Goal 9: Use the meaning of tens and ones digits to record comparisons of 2 two-digit numbers using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols.</p>	<p>Ready Math</p> <p>Lesson 22- Compare Numbers</p>	5
<p>■ 1.NBT.A.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Number names and the count sequence up to 120.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>count orally by ones up to 120.</li> </ul>		Repeated

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Unit 2 Grade 1				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
	regularity in repeated reasoning.	<ul style="list-style-type: none"> <li>count up to 120 beginning at any number less than 120.</li> <li>read numerals up to 120.</li> <li>write numerals up to 120.</li> <li>represent a number of objects up to 120 with a written number.</li> </ul> <p>Learning Goal 10: Count to 120 orally, read and write numerals, and write numerals to represent the number of objects (up to 120).</p>		

**Unit 2 Grade 1 What This May Look Like**

School/District Formative Assessment Plan	School/District Summative Assessment Plan
<ul style="list-style-type: none"> <li>iReady Assessments</li> <li>Student Conferencing</li> <li>Observation Checklist</li> <li>Anecdotal Notes</li> <li>Homework</li> <li>Running Records</li> <li>Student Self-Evaluations</li> <li>Short constructed response questions</li> <li>Multiple choice questions</li> <li>Academic/Domain specific vocabulary</li> <li>Quizzes</li> <li>Math Journal</li> <li>Exit ticket</li> <li>Accountable talk</li> </ul>	<ul style="list-style-type: none"> <li>Unit Benchmark</li> <li>Chapter Tests</li> <li>iReady Assessments</li> <li>State Assessments</li> </ul>

**Focus Mathematical Concepts**

<p><b>Prerequisite skills:</b></p> <p>1.OA.A.1*</p> <p><i>K.OA.A.2-Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.</i></p> <p>1.OA.B.3*</p> <p><i>K.OA.A.2-Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.</i></p> <p>1.NBT.A.1*</p> <p><i>K.CC.A.1-Count to 100 by ones and by tens.</i></p>
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1.NBT.B.2a-b

*K.NBT.A.1-Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g.,  $18 = 10 + 8$ ); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.*

1.NBT.B.3

*K.CC.C.7-Compare two numbers between 1 and 10 presented as written numerals.*

**Common Misconceptions:**

1.OA.1 The vocabulary of comparison situations can cause confusion for students. While the words more than implies addition and fewer than implies subtraction, in comparison situations, that is not always the case. Look at this example: Patty has 16 tickets for the raffle. She has 8 fewer than Marcus. How many tickets does Marcus have? Although the problem includes the word fewer, a student would actually add  $16 + 8$  to find the solution. Modeling with concrete objects to use the information by showing Patty's tickets and 8 more will help students realize that this is actually an addition problem.

1.OA.2 Some students think it is not possible to add more than two numbers. Although they may be familiar with seeing addition equations with three or more addends, they do not write equations with three or more addends. Students consider composing and decomposing numbers to learn facts, develop computation strategies, and do mental mathematics. The understanding that addition equations can contain more than two addends is important. Once students have had experience working with three addends, using concrete materials and drawings, they should have opportunities to write and solve addition equations with three or more addends.

1.OA.3 Although subtraction is not commutative, it is important not to contribute to a potential student misconception by saying that you cannot take a larger number from a smaller number. It is appropriate to say that  $8 - 5 \neq 5 - 8$ . It is possible to take a larger number from a smaller number. The result will be a negative number. Integers are not introduced until middle school.

1.OA.6 Continue to watch for students who are double counting a number when adding or subtracting.

1.OA.7 Some students may develop the misconception that the equal sign indicates the answer comes next to calls for the action of doing the mathematical operation. When students use calculators, pressing the equal key results in the answer, which can also cause this misconception. Students should have experiences early on that reinforce that the equal sign indicates both sides of the equation represent the amount. Using a balance scale or picture of a balance scale with the equal sign on the center helps students to understand that the equal sign on the enter helps students understand that the equal sign means both sides are balanced. As teachers model writing equations or give students examples to solve, it is important to repeat that the equal sign means "the same as." It is appropriate in early experiences using the equal sign to have students read it as "is the same as." For example, students would read  $10 - 7 = 3$  as "10 minus 7 is the same as 3."

1.OA.8 Although students may be able to model problem situations with materials and pictures, the transition to writing equations using symbols may be more difficult for them, particularly when their reasoning requires finding a missing addend. Asking students to explain their reasoning as they solve the problem with materials will help them to connect what they have done with the materials to the symbolic equation. Be sure that students have multiple experiences solving equations in which the unknown is in different positions.

$3 + 8 = \underline{\quad}$        $3 + \underline{\quad} = 11$        $\underline{\quad} + 3 = 11$        $11 - 3 = \underline{\quad}$        $11 - \underline{\quad} = 8$        $\underline{\quad} - 3 = 8$

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1.MD.4 Some students may pose a question that has too many choices such as “What is your favorite color?” To help with this error, ensure students limit the categories to only three choices. Some children may not realize they have not collected data from every student in the class. To help with this error, make sure students know the total number of classmates who will be answering the question. Some students may not be able to summarize with statements like, “The majority of the students like or have,” or similar statements.

1.NBT.1 It is not expected that students develop an understanding of place value with this standard. However, watch for students who reverse digits in writing the numeral or do not demonstrate an understanding that 21 does not have the same value as 12. When reversals occur, have students model each number, using straws or linking cubes to reinforce the place value of digits and to help differentiate between the numbers. 1.NBT.4 Students who do not know basic facts may be inaccurate computing with two-digit numbers. As those students continue to work on facts, physical models will help in adding accurately. Be sure that all students have ample experience with adding physical models on place value charts, counting on by benchmark numbers (tens and ones), using a hundreds chart, and using ten frames as appropriate. Make explicit connections among written physical models, strategies, and written formats. Regrouping (composing tens from ones) when adding two-digit numbers is included in this standard. It is appropriate for students to use physical models for these examples and explain their reasoning, explicitly connecting physical models with symbolic notation (written equations).

1.NBT.2 Continue to watch for students who reverse digits. These students need more opportunities to decompose numbers into groups of ten and ones using concrete materials and then to put the items in the correct places on a place value chart. They describe the number in terms of tens and ones and then write the numeral below the concrete representation. Observe students counting tens and ones separately. For example, students who count 10, 20, 1,2,3, rather than 10, 20, 21, 22,23, need more practice with counting. Some students may have difficulty differentiating number words that sound alike, for example, fifty and fifteen. These number words can be spelled out and added to a word wall showing pictures, numbers, and words.

1.NBT.3 Students who recognize two-digit numbers but do not understand that the position of the digit determines its value need additional work with concrete representations. Give each student a number and ask them to represent that number on their place value chart. They work with a partner to determine which number is greater. They use cards with , or = and put the correct sign between their charts. Only when students show understanding with materials and pictorial representations should they begin to connect those representations to using numerals. It is important for students to associate the symbols < and > with their real meaning. Rather use aids such as alligators or Pac-Man, it may help students who confuse the symbols to think that the open end of the symbol is always closest to the greater number and the closed end is always pointed to the lesser number. It is also important to give students opportunities to change the order of the numbers to see how it impacts the symbols and their meaning. Example:  $35 < 65$  or  $65 > 35$

**Number Fluency:**

1.OA.C.6 Add and Subtract within 10

**District/School Tasks**

ELA Connections:

- Math Journals
- Math Word Wall
- Math Storytelling
- Think-Write-Pair-Share
- Prompts use successful pre-writing strategies such as:
  - Make a web.

**District/School Primary and Supplementary Resources**

Fact Fluency Resources:

- <https://www.factmonster.com/math/flashcards>
- <https://kahoot.com/welcomeback/>
- <https://quizlet.com/>
- <https://www.socrative.com/>
- <https://www.funbrain.com/games/math-baseball>
- <https://www.multiplication.com/games/all-games>

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- Draw a picture and label.
- Write a definition in your own words.
- Create examples of the skill/concept and explain.
- Write about a real-life use of this math concept or skill.
- Connect the concept/skill to concepts/skills you already learned and use.
- Reflect on your understanding of this concept/skill on a scale of 1-5 and explain.
- Create a K-W-L chart

International/ Global Activities-

<https://populationeducation.org/teacher-resources/>

Scholastic

<http://teacher.scholastic.com/max/index.htm>

- <https://mathfactspro.com/math-fact-fluency-game/>

Math Fluency Classroom Ideas:

- <https://onesteopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html>
- <https://www.weareteachers.com/15-fun-ways-to-practice-math/>

Resources

<https://njctl.org>

<https://www.engageny.org/>

<https://www.illustrativemathematics.org/content-standards>

<http://www.k-5mathteachingresources.com/>

<https://www.mathplayground.com/>

**Instructional Best Practices and Exemplars**

- Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
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- Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
- Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
- Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
- Identifying Similarities and Differences
- Reinforcing Effort and Providing Recognition
- Homework and Practice
- Nonlinguistic Representations
- Cooperative Learning



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**Mathematics-Grade 1**

- Setting Objectives and providing Feedback
- Gradual Release of Responsibility
- Managing response rates
- Checks for understanding
- Coaching
- Visuals
- Collaborative problem solving
- Active engagement strategies
- Establishing metacognitive reflection and articulation

**21<sup>st</sup> Century Life and Careers Standards**

**Career Ready Practices:**

CRP2: Apply appropriate academic and technical skills.

CRP4: Communicate clearly and effectively and with reason.

CRP6: Demonstrate creativity and innovation.

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11: Use technology to enhance productivity.

CRP12: Work productively in teams while using cultural global competence

**Personal Financial Literacy - Income And Careers**

9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

9.1.4.A.2 Identify potential sources of income.

**Career Awareness, Exploration, And Preparation - Career Awareness**

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

**Technology Standards**

8.1 Educational Technology: All students will use digital tools to assess, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. Technology Operations and Concepts:

8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.

8.1.2.A.2 Create a document using a word processing application.

8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of each.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual Environments (i.e. games, museums)

8.1.2.A.5 Enter information into a spreadsheet and sort the information.

8.1.2.A.6 Identify the structure and components of a database.

8.1.2.A.7 Enter information into a database or spreadsheet and filter the information.

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**B. Creativity and Innovation**

8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

**C. Communication and Collaboration:**

8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.

**D. Digital Citizenship**

8.1.2.D.1 Develop an understanding of ownership of print and non-print information.

**E: Research and Information Fluency:**

8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.

**F. Critical thinking, problem solving, and decision making:**

8.1.2.F.1 Use geographic mapping tools to plan and solve problems.

8.2 Technology, Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

**A. The Nature of Technology: Creativity and Innovation**

8.2.2.A.1 Define products produced as a result of the technology or of nature.

8.2.2.A.2 Describe how designed products and systems are useful at school, home or work.

8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.

8.2.2.A.4 Choose a product to make and plan the tools and material needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

**Accommodations/ Differentiation**

- Modify activities/assignments/projects/assessments
- Breakdown activities/assignments/projects/assessments into manageable units
- Additional time to complete activities/assignments/projects/assessments
- Provide an option for alternative activities/assignments/projects/assessments
- Adjust Pacing of Content
- Small Group Intervention/Remediation
- Individual Intervention/Remediation
- Guided Notes
- Graphic Organizers

***IEP-Follow IEP Plan which may contain some of the following examples...***

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers

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- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video

**504-Follow 504 Plan which may contain some of the following examples...**

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
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- Practice buddy

***ELL***

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating

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**Mathematics-Grade 1**

- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
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- Songs/videos to reinforce concepts
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- Math Diagnosis & Intervention System

All WIDA Can Do Descriptors can be found at this link: [https://www.wida.us/standards/CAN\\_DOs/](https://www.wida.us/standards/CAN_DOs/)

WIDA Can Do Descriptors:

- Listening
- Speaking
- Reading
- Writing
- Oral Language

**ELL Strategies**

- Develop Meaning
- Elicit Prior Knowledge
- Identify Relationships
- Rephrase -Scaffold Language

**At Risk Students**

- Additional time during intervention time
- Questions read aloud
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**Gifted & Talented**

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today’s Challenge

Unit 3 Grade 1				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>■ 1.NBT.B.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:</p> <p>1.NBT.B.2.c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Two digits represent amounts of tens and ones.</li> <li>• The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• compose tens to make numbers up to 90.</li> <li>• decompose numbers up to 90, into tens.</li> <li>• identify the value of the number in the tens or ones place.</li> </ul> <p>Learning Goal 1: Compose and decompose numbers <u>to 90</u> into tens, identifying the value of the number in the tens and ones place.</p>	<p>Ready Math</p> <p>Lesson 12- Understand Teen Numbers</p> <p>Lesson 17- Understand Teens</p> <p>Lesson 21- Understand Tens and Ones</p>	<p>Repeated</p> <p>Continued</p>
<p>■ 1.NBT.C.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models (e.g. <b>base ten blocks</b>) 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</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• In adding two-digit numbers, add tens with tens and ones with ones.</li> <li>• In adding two-digit numbers, sometimes it is necessary to compose a ten.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• use concrete models and drawings with a strategy based on place value to add a two-digit number and a one-digit number.</li> <li>• use concrete models and drawings with properties of operations to add a two-digit</li> </ul>	<p>Ready Math</p> <p>Lesson 23- Add Tens to Any Number</p> <p>Lesson 24 Add Tens and Ones</p> <p>Lesson 25- Add and Regroup</p>	<p>15</p>

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**Mathematics-Grade 1**

Unit 3 Grade 1				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.		<p>number and a one-digit number.</p> <ul style="list-style-type: none"> <li>• use concrete models and drawings with a strategy based on place value to add a two-digit number and a multiple of 10.</li> <li>• use concrete models and drawings with properties of operations to add a two-digit number and a multiple of 10.</li> <li>• explain or show how the model relates to the strategy.</li> </ul> <p>Learning Goal 2: Add a 2-digit and a 1-digit number using concrete models and drawings with a place value strategy or properties of operations; explain or show how the model relates to the strategy (sums within 100).</p> <p>Learning Goal 3: Add a 2-digit number and a multiple of 10, using concrete models and drawings with a place value strategy or properties of operations. Explain or show how the model relates to the strategy (sums within 100).</p>		
■ 1.NBT.C.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• given a two-digit number, find 10 more than the number without counting.</li> <li>• given a two-digit number, find 10 less than the number without counting.</li> <li>• explain, given a two-digit number, how to find 10 more or ten less than the number without counting.</li> </ul> <p>Learning Goal 4: Explain, given a two-digit number, how to find 10 more or ten less than the number without having to count.</p>		Repeated
■ 1.NBT.C.6. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• use concrete models and drawings with a</li> </ul>	<p>Ready Math</p> <p>Lesson 20- Add and</p>	5

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**Mathematics-Grade 1**

Unit 3 Grade 1				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
(positive or zero differences), 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.	and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically MP.7 Look for and make use of structure.	<p>strategy based on place value to subtract a multiple of 10 from a multiple of 10 (both within the range 10-90).</p> <ul style="list-style-type: none"> <li>use concrete models and drawings with properties of operations to subtract a multiple of 10 from a multiple of 10 (both within the range 10-90).</li> <li>explain or show how the model relates to the strategy.</li> </ul> <p>Learning Goal 5: Subtract a multiple of 10 from a multiple of 10 (both within the range 10-90) using concrete models and drawings with a place value strategy or properties of operations. Explain or show how the model relates to the strategy (sums within 100).</p>	Subtract Tens	
■ 1.MD.A.1. Order three objects by length; compare the lengths of two objects indirectly by using a third object	MP.6 Attend to precision. MP.7 Look for and make use of structure.	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Objects can be compared and ordered based on length.</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>compare the length of two objects.</li> <li>compare the length of two objects by using a third object as a measuring tool.</li> <li>order three objects by length.</li> </ul> <p>Learning Goal 6: Order three objects by length and compare the lengths of two objects by using the third object (e.g., if the crayon is shorter than the marker and the marker is shorter than the pencil then the crayon is shorter than the pencil).</p>	Ready Math  Lesson 31- Order Objects by Length  Lesson 32- Compare Length	10
■ 1.MD.A.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end;	MP.6 Attend to precision. MP.7 Look for and make use of structure.	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>The length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.</li> </ul> <p>Students will be able to:</p>	Ready Math  Lesson 33- Understand Length Measurement	4

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Unit 3 Grade 1				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.</p> <p><i>Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i></p>		<ul style="list-style-type: none"> <li>lay multiple copies of a shorter object (the length unit) end to end.</li> <li>use a shorter object to express the length of a longer object.</li> </ul> <p>Learning Goal 7: Order three objects by length and compare the lengths of two objects by using the third object (e.g., if the crayon is shorter than the marker and the marker is shorter than the pencil then the crayon is shorter than the pencil).</p>		
<p>1.MD.B.3. Tell and write time in hours and half-hours using analog and digital clocks</p>	<p>MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Time is represented on analog and on digital clocks.</li> <li>Analog clocks have <i>hands</i> that indicate the time in hours and minutes.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>tell and write time in hours using analog and digital clocks.</li> <li>tell and write time in half-hours using analog and digital clocks.</li> <li>use the term <i>o'clock</i> in reporting time to the hour.</li> </ul> <p>Learning Goal 8: Tell and write time to the half-hour using the term <i>o'clock</i> and using digital notation (include both analog and digital clocks).</p>		
<p>1.OA.C.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., <math>8 + 6 = 8 + 2 + 4 = 10 + 4 = 14</math>); decomposing a number leading to a ten (e.g., <math>13 - 4 = 13 - 3 - 1 = 10 - 1 = 9</math>); using the relationship</p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Different strategies can be used to add and subtract .</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>add and subtract <u>within 20</u>, using the following strategies:                             <ul style="list-style-type: none"> <li>counting on;</li> <li>making ten;</li> </ul> </li> </ul>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 6- Doubles and Doubles Plus 1</p>	<p>Repeated 10</p>



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**Mathematics-Grade 1**

Unit 3 Grade 1				
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between addition and subtraction (e.g., knowing that $8 + 4 = 12$ , one knows $12 - 8 = 4$ ); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$ ).		<ul style="list-style-type: none"> <li>- composing numbers;</li> <li>- decomposing numbers;</li> <li>- relationship between addition and subtraction, and</li> <li>- creating equivalent but easier or known sums.</li> </ul> <ul style="list-style-type: none"> <li>• fluently add or subtract whole numbers <u>within 20</u>.</li> </ul> <p>Learning Goal 9: Add and subtract whole numbers <u>within 20</u> using various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc</p>	<p><i>Lesson 2- Count on to Subtract</i></p> <p><i>Lesson 9 -Number Partners for 10</i></p> <p><i>Lesson 11- Facts I Know</i></p>	

**Unit 3 Grade 1 What This May Look Like**

School/District Formative Assessment Plan	School/District Summative Assessment Plan
<ul style="list-style-type: none"> <li>• iReady Assessments</li> <li>• Student Conferencing</li> <li>• Observation Checklist</li> <li>• Anecdotal Notes</li> <li>• Homework</li> <li>• Running Records</li> <li>• Student Self-Evaluations</li> <li>• Short constructed response questions</li> <li>• Multiple choice questions</li> <li>• Academic/Domain specific vocabulary</li> <li>• Quizzes</li> <li>• Math Journal</li> <li>• Exit ticket</li> <li>• Accountable talk</li> </ul>	<ul style="list-style-type: none"> <li>• Unit Benchmark</li> <li>• Chapter Tests</li> <li>• iReady Assessments</li> <li>• State Assessments</li> </ul>

**Focus Mathematical Concepts**

**Prerequisite skills:**

1.NBT.B.2c

*K.NBT.A.1-Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or*

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Mathematics-Grade 1

decomposition by a drawing or equation (e.g.,  $18 = 10 + 8$ ); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

1.MD.A.1

*K.MD.A.2-Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.*

**Common Misconceptions:**

1.NBT.2 Continue to watch for students who reverse digits. These students need more opportunities to decompose numbers into groups of ten and ones using concrete materials and then to put the items in the correct places on a place value chart. They describe the number in terms of tens and ones and then write the numeral below the concrete representation. Observe students counting tens and ones separately. For example, students who count 10, 20, 1,2,3, rather than 10, 20, 21, 22,23, need more practice with counting. Some students may have difficulty differentiating number words that sound alike, for example, fifty and fifteen. These number words can be spelled out and added to a word wall showing pictures, numbers, and words.

1.NBT.4 Students who do not know basic facts may be inaccurate computing with two-digit numbers. As those students continue to work on facts, physical models will help in adding accurately. Be sure that all students have ample experience with adding physical models on place value charts, counting on by benchmark numbers (tens and ones), using a hundreds chart, and using ten frames as appropriate. Make explicit connections among written physical models, strategies, and written formats. Regrouping (composing tens from ones) when adding two-digit numbers is included in this standard. It is appropriate for students to use physical models for these examples and explain their reasoning, explicitly connecting physical models with symbolic notation (written equations).

1.NBT.5 Since understanding the concept of 10 more or 10 less leads to understanding additional place value concepts, students who depend on counting or using their fingers have not met this standard. Students who cannot determine 10 more or 10 less than a number from 1 to 100 need more experience with concrete materials, such as linking cubes or bundles of straws. Finding patterns on the hundreds chart is also helpful, but the language can be confusing for some students (i.e., I go up a row to find 10 less and down a row to find 10 more).

1.NBT.6 Some students may subtract the digits in the tens place but ignore the digits in the ones place. Ask them to describe what they are subtracting in terms of place value. For example, in subtracting  $70 - 40$ , students should say they are taking 4 tens from 7 tens (or 7 tens minus 4 tens). Have them put concrete models on the place value chart and then subtract or physically remove the 4 tens from the 7 tens. They describe the difference as 3 tens. Ask them how to write 3 tens (30) and how many ones are in that number. They should explain why there are 0 ones and why it is necessary to put the digit 0 in the ones place.

**Number Fluency:**

1.OA.C.6 Add and Subtract within 10

District/School Tasks	District/School Primary and Supplementary Resources
ELA Connections: <ul style="list-style-type: none"><li>• Math Journals</li><li>• Math Word Wall</li><li>• Math Storytelling</li></ul>	Fact Fluency Resources: <ul style="list-style-type: none"><li>• <a href="https://www.factmonster.com/math/flashcards">https://www.factmonster.com/math/flashcards</a></li><li>• <a href="https://kahoot.com/welcomeback/">https://kahoot.com/welcomeback/</a></li><li>• <a href="https://quizlet.com/">https://quizlet.com/</a></li></ul>

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### Mathematics-Grade 1

- Think-Write-Pair-Share
- Prompts use successful pre-writing strategies such as:
  - Make a web.
  - Draw a picture and label.
  - Write a definition in your own words.
  - Create examples of the skill/concept and explain.
  - Write about a real-life use of this math concept or skill.
  - Connect the concept/skill to concepts/skills you already learned and use.
  - Reflect on your understanding of this concept/skill on a scale of 1-5 and explain.
  - Create a K-W-L chart

International/ Global Activities-

<https://populationeducation.org/teacher-resources/>

Scholastic

<http://teacher.scholastic.com/max/index.htm>

- <https://www.socrative.com/>
- <https://www.funbrain.com/games/math-baseball>
- <https://www.multiplication.com/games/all-games>
- <https://mathfactspro.com/math-fact-fluency-game/>

Math Fluency Classroom Ideas:

- <https://onestopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html>
- <https://www.weareteachers.com/15-fun-ways-to-practice-math/>

Resources

<https://njectl.org>

<https://www.engageny.org/>

<https://www.illustrativemathematics.org/content-standards>

<http://www.k-5mathteachingresources.com/>

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**Mathematics-Grade 1**

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8.1.2.A.5 Enter information into a spreadsheet and sort the information.

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**Mathematics-Grade 1**

8.1.2.A.6 Identify the structure and components of a database.

8.1.2.A.7 Enter information into a database or spreadsheet and filter the information.

B. Creativity and Innovation

8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

C. Communication and Collaboration:

8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.

D. Digital Citizenship

8.1.2.D.1 Develop an understanding of ownership of print and non-print information.

E: Research and Information Fluency:

8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.

F. Critical thinking, problem solving, and decision making:

8.1.2.F.1 Use geographic mapping tools to plan and solve problems.

8.2 Technology, Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. The Nature of Technology: Creativity and Innovation

8.2.2.A.1 Define products produced as a result of the technology or of nature.

8.2.2.A.2 Describe how designed products and systems are useful at school, home or work.

8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.

8.2.2.A.4 Choose a product to make and plan the tools and material needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

**Accommodations/ Differentiation**

- Modify activities/assignments/projects/assessments
- Breakdown activities/assignments/projects/assessments into manageable units
- Additional time to complete activities/assignments/projects/assessments
- Provide an option for alternative activities/assignments/projects/assessments
- Adjust Pacing of Content
- Small Group Intervention/Remediation
- Individual Intervention/Remediation
- Guided Notes
- Graphic Organizers

***IEP-Follow IEP Plan which may contain some of the following examples...***

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating

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- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video

**504-Follow 504 Plan which may contain some of the following examples...**

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

***ELL***

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- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

All WIDA Can Do Descriptors can be found at this link: [https://www.wida.us/standards/CAN\\_DOs/](https://www.wida.us/standards/CAN_DOs/)

WIDA Can Do Descriptors:

- Listening
- Speaking
- Reading
- Writing
- Oral Language

**ELL Strategies**

Develop Meaning

Elicit Prior Knowledge

Identify Relationships

Rephrase -Scaffold Language

**At Risk Students**

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System

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- Another look homework video
- Practice buddy

**Gifted & Talented**

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

**Unit 4 Grade 1**

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>1.G.A.1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.</p>	<p>MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Defining attributes versus non defining attributes.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• name attributes that define two-dimensional shapes (square, triangle, rectangle, regular hexagon).</li> <li>• name attributes that do not two-dimensional shapes.</li> <li>• build and draw shapes when given defining attributes.</li> </ul> <p>Learning Goal 1: Name the attributes of a given two-dimensional shape (square, triangle, rectangle, regular hexagon), distinguishing between defining and non-defining attributes.</p> <p>Learning Goal 2: Build and draw shapes when given defining attributes.</p>	<p>Ready Math</p> <p>Lesson 26- Understand Shapes</p>	4
<p>1.G.A.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones,</p>	<p>MP.4 Model with mathematics. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Shapes can be composed from other shapes (e.g. trapezoids can be composed from triangles).</li> <li>• New shapes can be composed from composite shapes.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• create a composite shape using two-dimensional shapes (rectangles, squares, trapezoids, triangles,</li> </ul>	<p>Ready Math</p> <p>Lesson 27- Understand Putting Shapes Together</p>	4



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Unit 4 Grade 1

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.</p>		<p>half-circles, and quarter-circles).</p> <ul style="list-style-type: none"> <li>• create a composite shape using three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders).</li> <li>• compose <i>new</i> shapes from the <i>composite</i> shapes.</li> </ul> <p>Learning Goal 3: Create a composite shape by composing two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles and quarter circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders), and compose new shapes from the composite shape.</p>		
<p>1.G.A.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares</p>	<p>MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.6 Attend to precision. MP.4 Model with mathematics. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Shapes can be partitioned into equal parts or shares.</li> <li>• Equal shares are named based on the number of shares that make the whole (e.g. halves, fourths, quarters).</li> <li>• Shares can be described based on their relation to the whole (e.g. <i>half of</i>, <i>fourth of</i>, <i>quarter of</i>).</li> <li>• The whole can be described based on the number of shares.</li> <li>• Decomposing a whole into more equal shares creates smaller shares.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• partition circles and rectangles into two or four equal shares.</li> <li>• distinguish equal shares from those that are not equal.</li> <li>• describe shares using the words halves, fourths, and quarters.</li> <li>• describe the relationship between the whole and the share using the phrases <i>half of</i>, <i>fourth of</i>, and <i>quarter of</i>.</li> <li>• describe the whole as <i>two of</i>, or <i>four of</i> the shares.</li> <li>• decompose a whole into a greater number of equal</li> </ul>	<p>Ready Math</p> <p>Lesson 28- Understand Breaking Shapes Apart</p>	<p>4</p>

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Unit 4 Grade 1

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
		<p>shares and identify the new shares as smaller.</p> <p>Learning Goal 4: Partition circles and rectangles into two or four equal shares, describing the shares using halves, fourths, and quarters and use the phrases <i>half of</i>, <i>fourth of</i>, and <i>quarter of</i>. Describe the whole circle (or rectangle) partitioned into two or four equal shares as <i>two of</i>, or <i>four of</i> the shares.</p>		
<p>■ 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, <i>e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</i></p>	<p>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.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Symbols can be used to represent unknown numbers.</li> <li>• The symbol (unknowns) can be in any position.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>• add, using objects and drawings, to solve word problems involving situations of adding to and putting together.</li> <li>• subtract, using objects and drawings, to solve word problems involving situations of taking from and taking apart.</li> </ul> <p>Learning Goal 5: Use addition and subtraction <u>within 20</u> to solve problems, including word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions.</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p>	<p>Repeated</p>
<p>■ 1.OA.C.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (<i>e.g., <math>8 + 6 = 8 + 2 + 4 = 10 + 4 = 14</math></i>); decomposing a number leading to a ten (<i>e.g., <math>13 - 4 = 13 - 3 - 1 = 10 - 1 = 9</math></i>); using the relationship between addition and subtraction (<i>e.g., knowing that <math>8 + 4 = 12</math>, one knows 12</i></p>	<p>MP.2 Reason abstractly and quantitatively.                      MP.7 Look for and make use of structure.                      MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Different strategies can be used to add and subtract.</li> </ul> <p>Students will be able to:</p> <ul style="list-style-type: none"> <li>• add and subtract <u>within 20</u>, using the following strategies:                             <ul style="list-style-type: none"> <li>– counting on;</li> <li>– making ten;</li> <li>– composing numbers;</li> <li>– decomposing numbers;</li> <li>– relationship between addition and subtraction, and</li> <li>– creating equivalent but easier or known</li> </ul> </li> </ul>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p>	<p>Repeated</p>

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Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>– 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13)</p>		<p>sums.</p> <ul style="list-style-type: none"> <li>fluently add or subtract whole numbers <u>within 20</u>.</li> </ul> <p>Learning Goal 6: Add and subtract whole numbers <u>within 20</u> using various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc.</p>		
<p>■ 1.NBT.A.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Number names and the count sequence up to 120.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>count orally by ones <u>up to 120</u>.</li> <li>count up to 120 beginning at any number less than 120.</li> <li>read numerals up to 120.</li> <li>write numerals up to 120.</li> <li>represent a number of objects up to 120 with a written number.</li> </ul> <p>Learning Goal 7: Count to 120 orally, read and write numerals, and write numerals to represent the number of objects (<u>up to 120</u>).</p>		<p>Repeated</p>
<p>■ 1.NBT.C.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models (e.g. <b>base ten blocks</b>) 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. Understand that in adding two-</p>	<p>MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>In adding two-digit numbers, add tens with tens and ones with ones.</li> <li>In adding two-digit numbers, sometimes it is necessary to compose a ten.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>use concrete models and drawings with a strategy based on place value to add a two-digit number and a one-digit number.</li> <li>use concrete models and drawings with properties of operations to add a two-digit number and a one-digit number.</li> <li>use concrete models and drawings with a strategy based on place value to add a two-digit number and a</li> </ul>		

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**Unit 4 Grade 1**

<b>Unit 4 Grade 1</b>			<b>Resources</b>	<b>Days</b>
<b>Content Standards</b>	<b>Suggested Standards for Mathematical Practice</b>	<b>Critical Knowledge &amp; Skills</b>		
digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.		multiple of 10. <ul style="list-style-type: none"> <li>• use concrete models and drawings with properties of operations to add a two-digit number and a multiple of 10.</li> <li>• explain or show how the model relates to the strategy.</li> </ul> Learning Goal 8: Add a 2-digit and a 1-digit number using concrete models and drawings with a place value strategy or properties of operations; explain or show how the model relates to the strategy (sums within 100). Learning Goal 9: Add a 2-digit number and a multiple of 10, using concrete models and drawings with a place value strategy or properties of operations. Explain or show how the model relates to the strategy (sums within 100).		

**Unit 4 Grade 4 What This May Look Like**

<b>School/District Formative Assessment Plan</b>	<b>School/District Summative Assessment Plan</b>
<ul style="list-style-type: none"> <li>• iReady Assessments</li> <li>• Student Conferencing</li> <li>• Observation Checklist</li> <li>• Anecdotal Notes</li> <li>• Homework</li> <li>• Running Records</li> <li>• Student Self-Evaluations</li> <li>• Short constructed response questions</li> <li>• Multiple choice questions</li> <li>• Academic/Domain specific vocabulary</li> <li>• Quizzes</li> <li>• Math Journal</li> <li>• Exit ticket</li> <li>• Accountable talk</li> </ul>	<ul style="list-style-type: none"> <li>• Unit Benchmark</li> <li>• Chapter Tests</li> <li>• iReady Assessments</li> <li>• State Assessments</li> </ul>

**Focus Mathematical Concepts**

**Prerequisite skills:**

I.G.A.1

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*K.G.B.4-Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).*

*K.G.B.5-Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.*

1.G.A.2

K.G.B.6-Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”

1.OA.A.1\*

*K.OA.A.2-Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.*

1.NBT.A.1\*

*K.CC.A.1-Count to 100 by ones and by tens.*

**Common Misconceptions:**

1.OA.1 The vocabulary of comparison situations can cause confusion for students. While the words more than implies addition and fewer than implies subtraction, in comparison situations, that is not always the case. Look at this example: Patty has 16 tickets for the raffle. She has 8 fewer than Marcus. How many tickets does Marcus have? Although the problem includes the word fewer, a student would actually add  $16 + 8$  to find the solution. Modeling with concrete objects to use the information by showing Patty’s tickets and 8 more will help students realize that this is actually an addition problem.

1.OA.6 Continue to watch for students who are double counting a number when adding or subtracting.

1.NBT.1 It is not expected that students develop an understanding of place value with this standard. However, watch for students who reverse digits in writing the numeral or do not demonstrate an understanding that 21 does not have the same value as 12. When reversals occur, have students model each number, using straws or linking cubes to reinforce the place value of digits and to help differentiate between the numbers. 1.NBT.4 Students who do not know basic facts may be inaccurate computing with two-digit numbers. As those students continue to work on facts, physical models will help in adding accurately. Be sure that all students have ample experience with adding physical models on place value charts, counting on by benchmark numbers (tens and ones), using a hundreds chart, and using ten frames as appropriate. Make explicit connections among written physical models, strategies, and written formats. Regrouping (composing tens from ones) when adding two-digit numbers is included in this standard. It is appropriate for students to use physical models for these examples and explain their reasoning, explicitly connecting physical models with symbolic notation (written equations).

1.NBT.4 Students who do not know basic facts may be inaccurate computing with two-digit numbers. As those students continue to work on facts, physical models will help in adding accurately. Be sure that all students have ample experience with adding physical models on place value charts, counting on by benchmark numbers (tens and ones), using a hundreds chart, and using ten frames as appropriate. Make explicit connections among written physical models, strategies, and written formats. Regrouping (composing tens from ones) when adding two-digit numbers is included in this standard. It is appropriate for students to use physical models for these examples and explain their reasoning, explicitly connecting physical models with symbolic notation (written equations).

**Number Fluency:**

1.OA.C.6 Add and Subtract within 10

District/School Tasks	District/School Primary and Supplementary Resources
ELA Connections: <ul style="list-style-type: none"><li>• Math Journals</li></ul>	Fact Fluency Resources: <ul style="list-style-type: none"><li>• <a href="https://www.factmonster.com/math/flashcards">https://www.factmonster.com/math/flashcards</a></li></ul>

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<ul style="list-style-type: none"><li>• Math Word Wall</li><li>• Math Storytelling</li><li>• Think-Write-Pair-Share</li><li>• Prompts use successful pre-writing strategies such as:<ul style="list-style-type: none"><li>○ Make a web.</li><li>○ Draw a picture and label.</li><li>○ Write a definition in your own words.</li><li>○ Create examples of the skill/concept and explain.</li><li>○ Write about a real-life use of this math concept or skill.</li><li>○ Connect the concept/skill to concepts/skills you already learned and use.</li><li>○ Reflect on your understanding of this concept/skill on a scale of 1-5 and explain.</li><li>○ Create a K-W-L chart</li></ul></li></ul> <p>International/ Global Activities- <a href="https://populationeducation.org/teacher-resources/">https://populationeducation.org/teacher-resources/</a></p> <p>Scholastic <a href="http://teacher.scholastic.com/max/index.htm">http://teacher.scholastic.com/max/index.htm</a></p>	<ul style="list-style-type: none"><li>• <a href="https://kahoot.com/welcomeback/">https://kahoot.com/welcomeback/</a></li><li>• <a href="https://quizlet.com/">https://quizlet.com/</a></li><li>• <a href="https://www.socrative.com/">https://www.socrative.com/</a></li><li>• <a href="https://www.funbrain.com/games/math-baseball">https://www.funbrain.com/games/math-baseball</a></li><li>• <a href="https://www.multiplication.com/games/all-games">https://www.multiplication.com/games/all-games</a></li><li>• <a href="https://mathfactspro.com/math-fact-fluency-game/">https://mathfactspro.com/math-fact-fluency-game/</a></li></ul> <p>Math Fluency Classroom Ideas:</p> <ul style="list-style-type: none"><li>• <a href="https://onestopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html">https://onestopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html</a></li><li>• <a href="https://www.weareteachers.com/15-fun-ways-to-practice-math/">https://www.weareteachers.com/15-fun-ways-to-practice-math/</a></li></ul> <p>Resources</p> <p><a href="https://njctl.org">https://njctl.org</a></p> <p><a href="https://www.engageny.org/">https://www.engageny.org/</a></p> <p><a href="https://www.illustrativemathematics.org/content-standards">https://www.illustrativemathematics.org/content-standards</a></p> <p><a href="http://www.k-5mathteachingresources.com/">http://www.k-5mathteachingresources.com/</a></p> <p><a href="https://www.mathplayground.com/">https://www.mathplayground.com/</a></p>
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**Instructional Best Practices and Exemplars**

- Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
- Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
- Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.
- Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
- Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
- Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.

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- Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
- Identifying Similarities and Differences
- Reinforcing Effort and Providing Recognition
- Homework and Practice
- Nonlinguistic Representations
- Cooperative Learning
- Setting Objectives and providing Feedback
- Gradual Release of Responsibility
- Managing response rates
- Checks for understanding
- Coaching
- Visuals
- Collaborative problem solving
- Active engagement strategies
- Establishing metacognitive reflection and articulation

**21<sup>st</sup> Century Life and Careers Standards**

**Career Ready Practices:**

CRP2: Apply appropriate academic and technical skills.

CRP4: Communicate clearly and effectively and with reason.

CRP6: Demonstrate creativity and innovation.

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11: Use technology to enhance productivity.

CRP12: Work productively in teams while using cultural global competence

**Personal Financial Literacy - Income And Careers**

9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

9.1.4.A.2 Identify potential sources of income.

**Career Awareness, Exploration, And Preparation - Career Awareness**

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

**Technology Standards**

8.1 Educational Technology: All students will use digital tools to assess, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. Technology Operations and Concepts:

8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.

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8.1.2.A.2 Create a document using a word processing application.

8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of each.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual Environments (i.e. games, museums)

8.1.2.A.5 Enter information into a spreadsheet and sort the information.

8.1.2.A.6 Identify the structure and components of a database.

8.1.2.A.7 Enter information into a database or spreadsheet and filter the information.

B. Creativity and Innovation

8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

C. Communication and Collaboration:

8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.

D. Digital Citizenship

8.1.2.D.1 Develop an understanding of ownership of print and non-print information.

E: Research and Information Fluency:

8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.

F. Critical thinking, problem solving, and decision making:

8.1.2.F.1 Use geographic mapping tools to plan and solve problems.

8.2 Technology, Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. The Nature of Technology: Creativity and Innovation

8.2.2.A.1 Define products produced as a result of the technology or of nature.

8.2.2.A.2 Describe how designed products and systems are useful at school, home or work.

8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.

8.2.2.A.4 Choose a product to make and plan the tools and material needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

**Accommodations/ Differentiation**

- Modify activities/assignments/projects/assessments
- Breakdown activities/assignments/projects/assessments into manageable units
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- Provide an option for alternative activities/assignments/projects/assessments
- Adjust Pacing of Content
- Small Group Intervention/Remediation
- Individual Intervention/Remediation
- Guided Notes
- Graphic Organizers

***IEP-Follow IEP Plan which may contain some of the following examples...***



**Principle Academy Charter School**

**Mathematics-Grade 1**

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video

**504-Follow 504 Plan which may contain some of the following examples...**

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System

**Principle Academy Charter School**

**Mathematics-Grade 1**

- Another look homework video
- Practice buddy

***ELL***

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

All WIDA Can Do Descriptors can be found at this link: [https://www.wida.us/standards/CAN\\_DOs/](https://www.wida.us/standards/CAN_DOs/)

WIDA Can Do Descriptors:

- Listening
- Speaking
- Reading
- Writing
- Oral Language

**ELL Strategies**

Develop Meaning

Elicit Prior Knowledge

Identify Relationships

Rephrase -Scaffold Language

**At Risk Students**

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators

**Principle Academy Charter School**

**Mathematics-Grade 1**

- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

**Gifted & Talented**

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge