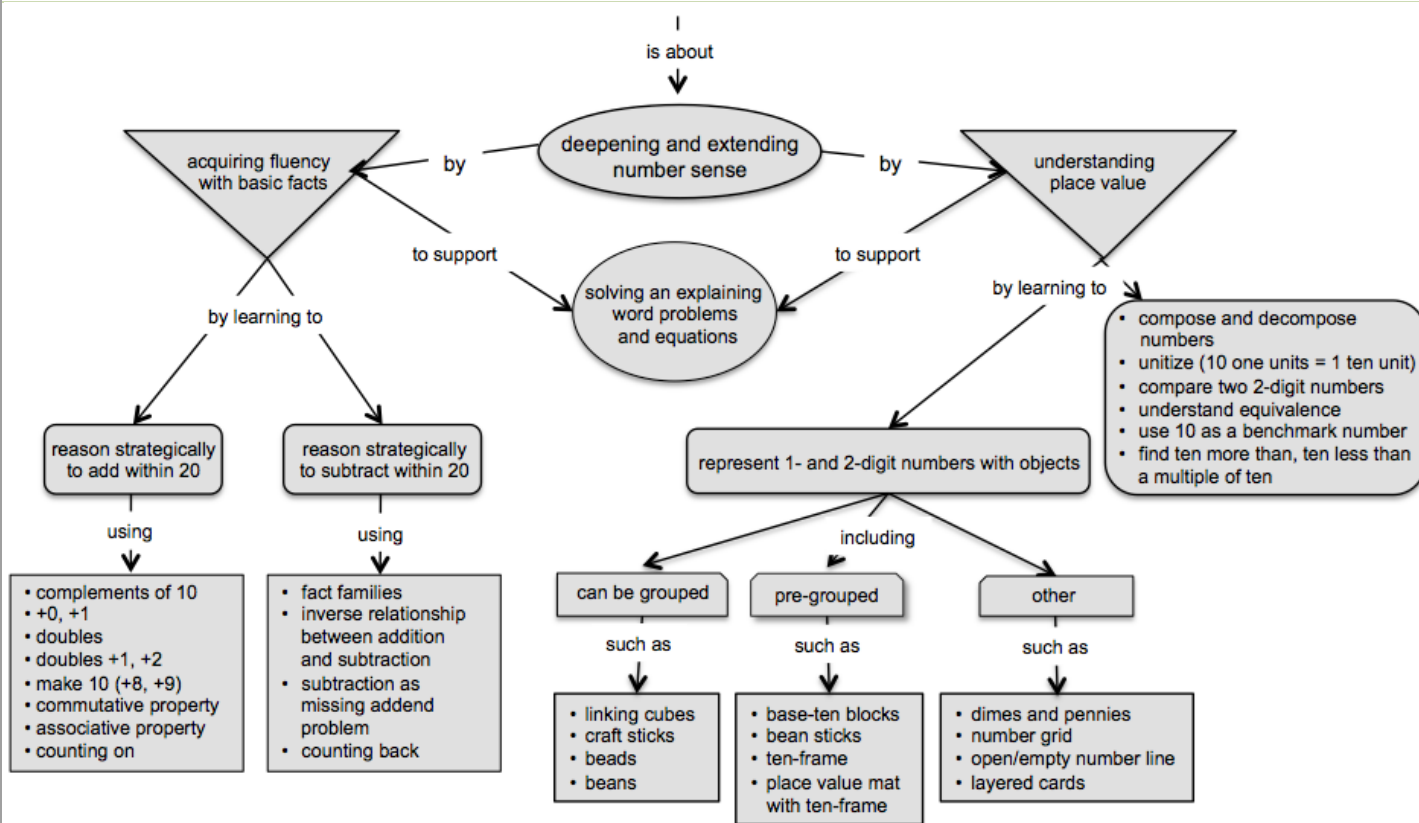**Unit: 5 - Basic Facts and Place Value** (Week 19, 6 Weeks) 📅

Common Core Initiative

Overarching Questions and Enduring Understandings

Why is it helpful to know how to compose and decompose numbers when solving math problems?

Graphic Organizer

Unit Abstract

This unit is the third of four number units in first grade. It addresses two linchpins of elementary mathematics: basic addition and subtraction facts and place value. Both involve the big ideas of composing and decomposing numbers and part-part-total relationships. With a solid foundation in those two areas, students are well-prepared for success in future mathematics. Without a foundation in both of those areas, students will be disadvantaged when approaching more challenging math tasks.

Quick recall of basic addition and subtraction facts, in particular those within 20 (and multiplication and division facts within 100 in third grade), is necessary for fluent whole number and decimal computation, estimation, and mental computation. Slowing down to "figure out" basic facts hinders students from focusing on more complex tasks. To strengthen students facility with basic facts within 20, this unit will build upon the work students did in unit 2 as they began to learn to solve word problems involving situations that result in the unknown being in different positions and worked to make sense of the inverse relationship between addition and subtraction. They will continue work with strategies for solving basic facts that further support understanding and the formation of mathematical connections. Using a strategies

approach, students engage in reasoning about the patterns and number relationships inherent in this set of facts.

While students began exploring these strategies as early as kindergarten, the strategies should become more natural and usable for students with ongoing and regular practice. Teachers should also see students using increasingly sophisticated strategies (e.g., Associative Property). These understandings take time to develop and mental engagement is critical. As such, students should be given multiple opportunities to explore and describe their thinking. They should also learn to listen to the reasoning of peers and, as appropriate, apply their peers' ideas to solving problems. Without these kinds of experiences, many students learn to see an addition chart or a stack of flash cards as nothing more than 100 unrelated facts that they need to memorize. Thinking about facts in this manner can frustrate students who struggle to memorize.   The result of intentional and regular strategy work is that students can acquire both mastery of basic addition and subtraction facts and a deeper understanding of number relationships.

The place value focus in this unit is on composing and decomposing two-digit numbers and explaining place value relationships. Students will name, write and explain the number represented by a set of place value material. Because there are critical differences in manipulative materials, teachers need to be intentional when selecting the materials students will use. To help students understand the important math idea of unitizing, the idea that a digit has a different value depending on its place in a number, students need practice exchanging ten one-units for one ten-unit. For this they need to use material that can be grouped, such as linking cubes, craft sticks that can be bundled with a rubber band, or snap beads. After working with a variety of "groupable" material, they work with material that has already been grouped, such as base-ten blocks. Students need experience with a variety of materials and representations (i.e., concrete, pictorial, and abstract) and should learn to make connections between and among representations over time.

📎 **Unit Overview (Word) 9-18-13**
📎 **Unit Overview (PDF) 9-18-13**

Content Expectations/Standards	Unit Level Standards
Grade 1, Operations & Algebraic Thinking **1.OA.A. Represent and solve problems involving addition and subtraction.** • 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, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. • 1.OA.A.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. **1.OA.B. Understand and apply properties of operations and the relationship between addition and subtraction.** • 1.OA.B.3. Apply properties of operations as strategies to add and subtract. Students need not use formal terms for these properties. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)* • 1.OA.B.4. Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8. Add and subtract within 20.*	

1.OA.C. Add and subtract within 20.
- 1.OA.C.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 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., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship 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 $6 + 6 + 1 = 12 + 1 = 13$).

1.OA.D. Work with addition and subtraction equations.
- 1.OA.D.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.
  For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.
- 1.OA.D.8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.
  For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \_ - 3$, $6 + 6 = \_$.

Grade 1, Number & Operations in Base Ten

1.NBT.B. Understand place value.
- 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:
  - 1.NBT.B.2.a. 10 can be thought of as a bundle of ten ones — called a "ten."
  - 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.
  - 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).
- 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 >, =, and <.

1.NBT.C. Use place value understanding and properties of operations to add and subtract.
- 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.

Essential/Focus Questions	Key Concepts
1. What strategies can help us solve addition and subtraction facts quickly and accurately? 2. What is important to pay attention to	addend Associative Property basic facts Commutative Property

when converting an addition or subtraction problem so that it is easier for you to solve? 3. What does the equal sign mean? 4. How does the value of a digit change when its position in a number changes? 5. What does "0" represent in a number? 6. What strategies help you compare two numbers?	compare (greater than, less than, equal to) compose decompose difference equivalence fact families part-part-whole place value strategy sum unit (ones, tens) zero

Assessment Tasks	**Intellectual Processes**
Assessment Overview **Professional Learning Task - Student Work Samples**	**Standards for Mathematical Practice** *Students will have opportunities to:* • **reason abstractly and quantitatively** when using numbers to represent a problem and when explaining thinking; • **model** numbers when decomposing and decomposing them; • **use appropriate tools strategically** when using concrete material to investigate place value concepts; and • **look for and make use of structure** when using the properties of operations to solve.

Lesson Sequence	**Resources**
Lesson Overview **Student Handouts** **Lesson Download - Supplemental Information** **Professional Learning Task - Teacher Explanation of Base Ten Game**	**Instructional Resources**

<< **Previous Year**

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