

## Strategy: Doubles and Halves – Grade 1

### Big Ideas :

- Doubling: Doubling is the sum of joining two equal groups
- Halving: Halving is separating a quantity into two equal groups
- Addition and subtraction are inverse operations

### Prerequisite skills:

- One-to-one correspondence
- Cardinality
- Understands that addition is putting together and subtraction is taking away
- Kindergarten Curriculum Connections:
- K.CC.4c: Understand that each successive number name refers to a quantity that is one larger. (0-10)
  - Although this standard does not specifically address one less, this should be a focus of instruction.
  - For fluency purposes, students should be able to name one more and one less up to 20. This can be done orally with phrases like “one more than 14 is 15,” “one less than 20 is 19,” “the next number would be \_\_\_,” “The number that comes before is \_\_\_.”
- K.OA.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g. claps), acting out situations, verbal explanations, expressions, or equations.
  - In addition to other number combinations, be sure to include many examples of adding and subtracting one more and one less.

### Direct Curriculum Connections:

- 1.OA.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  $6 + 6 + 1 = 12 + 1 = 13$ ).

### Supporting Curriculum Connections:

- 1.OA.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.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.3: Apply properties of operations as strategies to add and subtract.  
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.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.5: Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 1.OA.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.8: Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations  $8 + ? = 11$ ,  $5 = \_ - 3$ ,  $6 + 6 = \_$ .

#### **Instructional strategies:**

- Keep in mind that instruction may be different based on which phase the student exhibits
  1. If a student is at the modeling phase and begins counting with the smaller number your next instructional step would be to have them start at the larger number.
  2. If a student is relying on a number path to count on or back one, the next instructional step would be to wean them from the number path and recognize it is the previous or next number in the counting sequence.
- Expose students to equations during instruction. Students should be able to write an equation to show their thinking to match models or pictures. However, students should not be spending time memorizing or solving equations through drill activities (i.e. flashcards and worksheets).
- Students should work with word problem structures that give students a context for adding or subtracting doubles and halves (add to, take from, put together, take apart). The following are examples of word problems for this context:  
4 kids were sitting on the rug. 4 more kids sat down with them. How many kids are on the rug now? (add to)  
10 kids were playing outside. 5 kids lined up. How many kids still playing? (take from)  
7 boys and 7 girls were playing a game together. How many children were playing the game? (put together)  
12 children were playing a game. 6 of the children were boys. How many were girls? (take apart)  
A pack of pencils has 8 pencils. Half of them are missing. How many pencils are left? (take from)

- Students should be able to show their thinking with an equation, but should also show their thinking using number bonds, part part whole mats, ten frames, math racks, etc. Using a combination of these tools will build an understanding of the strategy.
- From Teaching Student Centered Mathematics, K-3 by Van de Walle see pages 101-102 and 106-111.  
Activity 4.5 Double Images  
Activity 4.6 Calculators Doubles  
See Visual Images of Doubles on page 101  
Activity 4.14 Missing Number Cards  
Activity 4.15 Missing Number Worksheets  
Activity 4.16 Find a Plus Fact to Help
- **Mastering the Basic Facts in Addition and Subtraction by O.Connell and SanGiovanni – Chapter 5, Doubles and Connecting to Subtraction**  
Literature Link- Double the Ducks by Stuart J. Murphy (p. 78-80).  
Exploring the Facts: Creating Equal Sets (p. 81)  
Literature Link- Martha Blah Blah by Susan Meddaugh (p. 88-89).
- **Number Talks by Sherry Parrish- Addition: Doubles (p. 107-111)**  
Focus on rekenreks, double ten frames and number sentences for doubles

#### **Resources to Support Instruction:**

- **Mastering the Basic Facts in Addition and Subtraction by O.Connell and SanGiovanni – Chapter 5, Doubles and Connecting to Subtraction**
- **The Book of Facts: Addition- A comprehensive Guide for Teaching Addition Facts by Burnett, Irons & Turton- Doubles (p.31-37)**
- Flash a card that represents a number and students double or halve it. What number is double? What number is half?  
Doubles Strategy Cards [\\*Print resource available\\*](#)  
Doubles Fact Cards [\\*Print resource available\\*](#)  
Doubles Dominos [\\*Print resource available\\*](#)
- **The Book of Facts: Subtraction- A comprehensive Guide for Teaching Subtraction Facts by Burnett, Irons & Turton- Doubles (p.31-35)**

Think-Addition Strategy cards [\\*Print resource available\\*](#)

Doubles Subtraction Fact cards [\\*Print resource available\\*](#)

**Assessment:**

- Assessments should focus on application of the strategy rather than equations. Asking the following questions may help assess a student's understanding of this strategy:
  - What is  $5+5$ ?
  - What is  $10+10$ ?
  - What is  $6+6$ ?
  - What is 8 doubled?
  - What is 4 doubled?
  - What is 9 doubled?
  - What  $6-3$ ?
  - What is  $10-5$ ?
  - What is  $18-9$ ?
  - What is half of 8?
  - What is half of 14?
  - What is half of 20?
- Observation/Interview Recording Tool