|  |  |
| --- | --- |
| **NC.2.OA.4**  **Array of Tiles** | |
| **Domain** | Operations and Algebraic Thinking |
| **Cluster** | Work with equal groups of objects to gain foundations for multiplication.  Understand place value. |
| **Standard(s)** | **2.OA.4** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends. |
| **Materials** | Pencil, paper, 16 square tiles. |
| **Task** | Provide the materials to the student. Read the problem to the student: *Use 8 tiles to make an array. Describe the array.* Prompt if needed: *How many rows are there? How many columns are there?* Then say: *Draw a picture of your array. Write an equation to illustrate your array.*  When the student has finished with the first array, say: *Use 8 more tiles to make a different array. Describe the array.* Prompt if needed: *How many rows are there? How many columns are there?* Then say: *Draw a picture of your array. Write an equation to illustrate your array.* |

|  |  |  |
| --- | --- | --- |
| **Continuum of Understanding** | | |
| **Not Yet Proficient** | * Needs prerequisite skills |  |
| **Progressing** | * Uses 8 tiles, but does not create an array. * Creates one array but does not create a second array that is different or correct. * If skip counts, counts incorrectly. * Drawing(s) does not represent array(s) created. * Equation(s) does not indicate repeated groups. | Strategy(ies) Used:   * Skip Counts * Makes Tens * Basic Facts * Creates easier or known sums * Doubles * Other:   Possible Solutions:  1 row of 8  8 + 0  8 rows of 1  1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 8  4 rows of 2  2 + 2 + 2 + 2 = 8  2 rows of 4  4 + 4 = 8 |
| **Meets Expectation** | * Creates two different arrays with the tiles. * Drawings accurately represent arrays created. * Equations indicate repeated groups   (e.g., 2 + 2 + 2 + 2 = 8). |

|  |
| --- |
| **Standards for Mathematical Practice** |
| **1. Makes sense and perseveres in solving problems.** |
| **2. Reasons abstractly and quantitatively.** |
| 3. Constructs viable arguments and critiques the reasoning of others. |
| 4. **Models with mathematics.** |
| 5. Uses appropriate tools strategically. |
| 6. **Attends to precision.** |
| **7. Looks for and makes use of structure.** |
| 8. Looks for and expresses regularity in repeated reasoning. |

**One-more-than - Two-more-than**

Use the strategy of one-more-than and two-more- than to solve these problems.

|  |  |
| --- | --- |
| 1. **1 + 9 = \_\_\_\_\_\_\_** | 1. **2 + 8 = \_\_\_\_\_\_\_** |
| 1. **7 + 1 = \_\_\_\_\_\_\_** | 1. **7 + 2 = \_\_\_\_\_\_\_** |
| 1. **6 + 1 = \_\_\_\_\_\_\_** | 1. **5 + 1 = \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 6 + 2** | 1. **\_\_\_\_\_\_\_ = 1 + 8** |
| 1. **\_\_\_\_\_\_\_ = 9 + 2** | 1. **\_\_\_\_\_\_\_ = 4 + 2** |

**Facts with Zero**

Use the strategy of Zero Facts to solve these problems.

|  |  |
| --- | --- |
| 1. **0 + 9 = \_\_\_\_\_\_\_** | 1. **0 + 8 = \_\_\_\_\_\_\_** |
| 1. **7 + 0 = \_\_\_\_\_\_\_** | 1. **4 + 0 = \_\_\_\_\_\_\_** |
| 1. **0 + 0 = \_\_\_\_\_\_\_** | 1. **5 + 0 = \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 3 + 0** | 1. **\_\_\_\_\_\_\_ = 0 + 1** |
| 1. **\_\_\_\_\_\_\_ = 7 + 0** | 1. **\_\_\_\_\_\_\_ = 2 + 0** |

**Doubles Plus Two**

Use the strategy of Near Doubles: Plus Two to solve these problems.

|  |  |
| --- | --- |
| 1. **7 + 9 = \_\_\_\_\_\_\_** | 1. **6 + 8 = \_\_\_\_\_\_\_** |
| 1. **7 + 5 = \_\_\_\_\_\_\_** | 1. **6 + 4 = \_\_\_\_\_\_\_** |
| 1. **2 + 4 = \_\_\_\_\_\_\_** | 1. **5 + 7 = \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 3 + 5** | 1. **\_\_\_\_\_\_\_ = 3 + 1** |
| 1. **\_\_\_\_\_\_\_ = 8 + 6** | 1. **\_\_\_\_\_\_\_ = 9 + 7** |

**Doubles Plus One**

Use the strategy of Near Doubles: Plus One to solve these problems.

|  |  |
| --- | --- |
| 1. **9 + 8 = \_\_\_\_\_\_\_** | 1. **7 + 8 = \_\_\_\_\_\_\_** |
| 1. **6 + 7 = \_\_\_\_\_\_\_** | 1. **4 + 5 = \_\_\_\_\_\_\_** |
| 1. **0 + 1 = \_\_\_\_\_\_\_** | 1. **5 + 6 = \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 3 + 4** | 1. **\_\_\_\_\_\_\_ = 1 + 2** |
| 1. **\_\_\_\_\_\_\_ = 8 + 9** | 1. **\_\_\_\_\_\_\_ = 2 + 3** |

**Make-Ten Facts**

Use the strategy of Making Tens to solve these problems.

|  |  |
| --- | --- |
| 1. **7 + 9 = \_\_\_\_\_\_\_** | 1. **6 + 8 = \_\_\_\_\_\_\_** |
| 1. **7 + 5 = \_\_\_\_\_\_\_** | 1. **6 + 9 = \_\_\_\_\_\_\_** |
| 1. **8 + 4 = \_\_\_\_\_\_\_** | 1. **5 + 9 = \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 3 + 9** | 1. **\_\_\_\_\_\_\_ = 8 + 3** |
| 1. **\_\_\_\_\_\_\_ = 8 + 9** | 1. **\_\_\_\_\_\_\_ = 7 + 8** |

**Doubles Plus Two**

Use the strategy of Near Doubles: Plus Two to solve these problems.

|  |  |
| --- | --- |
| 1. **9 + 7 = \_\_\_\_\_\_\_** | 1. **7 + 5 = \_\_\_\_\_\_\_** |
| 1. **6 + 4 = \_\_\_\_\_\_\_** | 1. **3 + 5 = \_\_\_\_\_\_\_** |
| 1. **8 + 6 = \_\_\_\_\_\_\_** | 1. **4 + 6 = \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 3 + 5** | 1. **\_\_\_\_\_\_\_ = 7 + 9** |
| 1. **\_\_\_\_\_\_\_ = 5 + 7** | 1. **\_\_\_\_\_\_\_ = 6 + 8** |

**Make Ten Extend-with 7**

Use the strategy of Making Tens to solve these problems.

|  |  |
| --- | --- |
| 1. **9 + 7 = \_\_\_\_\_\_\_** | 1. **7 + 5 = \_\_\_\_\_\_\_** |
| 1. **7 + 4 = \_\_\_\_\_\_\_** | 1. **3 + 7 = \_\_\_\_\_\_\_** |
| 1. **7 + 6 = \_\_\_\_\_\_\_** | 1. **7 + 8= \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 5 + 7** | 1. **\_\_\_\_\_\_\_ = 7 + 9** |
| 1. **\_\_\_\_\_\_\_ = 8 + 7** | 1. **\_\_\_\_\_\_\_ = 7 + 4** |

**Making Connections**

Solve.

|  |  |
| --- | --- |
| 4 + 5 = \_\_\_\_\_\_\_ | 6 – 4 = \_\_\_\_\_\_\_ |
| 2 + 6 = \_\_\_\_\_\_\_ | 8 - 3 = \_\_\_\_\_\_\_ |
| 5 + 2 = \_\_\_\_\_\_\_ | 8 – 6 = \_\_\_\_\_\_\_ |
| 7 – 2 = \_\_\_\_\_\_\_ | 9 – 4 = \_\_\_\_\_\_\_ |
| 4 + 2 = \_\_\_\_\_\_\_ | 9 – 6 = \_\_\_\_\_\_\_ |
| 8 – 5 = \_\_\_\_\_\_\_ | 3 + 5 = \_\_\_\_\_\_\_ |
| 7 – 5 = \_\_\_\_\_\_\_ | 6 + 2 = \_\_\_\_\_\_\_ |
| 9 – 5 = \_\_\_\_\_\_\_ | 5 + 2 = \_\_\_\_\_\_\_ |

**Build Up Through Ten**

Use the strategy of making tens to solve the problems.

|  |  |
| --- | --- |
| 1. **13 - 9 = \_\_\_\_\_\_\_** | 1. **15 - 9 = \_\_\_\_\_\_\_** |
| 1. **14 - 8 = \_\_\_\_\_\_\_** | 1. **13 - 8 = \_\_\_\_\_\_\_** |
| 1. **12 - 8 = \_\_\_\_\_\_\_** | 1. **11 - 8= \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 14 - 9** | 1. **\_\_\_\_\_\_\_ = 12 - 9** |
| 1. **\_\_\_\_\_\_\_ = 15 - 8** | 1. **\_\_\_\_\_\_\_ = 11 - 9** |

**Back Down Through Ten**

Use the strategy of using ten to solve the problems.

|  |  |
| --- | --- |
| 1. **14 - 6 = \_\_\_\_\_\_\_** | 1. **15 - 6 = \_\_\_\_\_\_\_** |
| 1. **13 - 4 = \_\_\_\_\_\_\_** | 1. **14 - 5 = \_\_\_\_\_\_\_** |
| 1. **12 - 3 = \_\_\_\_\_\_\_** | 1. **11 - 2= \_\_\_\_\_\_\_** |
| 1. **\_\_\_\_\_\_\_ = 15 - 7** | 1. **\_\_\_\_\_\_\_ = 13 - 5** |
| 1. **\_\_\_\_\_\_\_ = 14 - 6** | 1. **\_\_\_\_\_\_\_ = 11 - 3** |