| Grade: 3<br>Subject:<br>Mathematics | Unit 9: Multiplication and Division with 6, 7, and 8 and Problem Solving |
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| **Big Idea/Rationale** | • Students will learn multiplications and divisions for the factors 6, 7, and 8, while continuing to practice with the factors covered in Unit 4. The unit also focuses on word problems. Students are introduce to multiplication comparison word problems, write their own word problems of various types, and solve word problem involving several steps. |
| **Enduring Understanding (Mastery Objective)** | Students will understand that:<br>• Some real-world problems involving joining equal groups or comparison can be solved using multiplication.<br>• Repeated addition involves joining equal groups and is one way to think about multiplication.<br>• An array involves joining equal groups and is one way to think about multiplication.<br>• Two numbers can be multiplied in any order.<br>• Mathematical explanations can be given using words, pictures, numbers, or symbols.<br>• Some real-world problems involving joining or separating equal groups or comparison can be solved using division.<br>• Sharing involves separating equal groups and is one way to think about division.<br>• Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. |
| **Essential Questions (Instructional Objective)** | • How can you find the total number of objects in equal groups?<br>• How can you think of multiplication as repeated addition?<br>• What are arrays and how do they show multiplication?<br>• How can you write a story to describe a multiplication problem?<br>• How do you write a good mathematical explanation?<br>• How can you think of division as sharing?<br>• How can you think of division as repeated subtraction?<br>• How can you solve problems by drawing a picture and writing a number sentence? |
| **Content (Subject Matter)** | • Explore patterns in 6s count-bys, multiplications, and divisions.<br>• Use a variety of strategies to solve multiplication problems.<br>• Develop strategies for solving real-world area problems.<br>• Explore patterns in 8s count-bys, multiplications, and divisions.<br>• Use a variety of strategies to solve multiplication problems.<br>• Write multiplications and division word problems of various types.<br>• Explore patterns in 7s count-bys, multiplications, and divisions.<br>• Use a variety of strategies to solve multiplication problems. |

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| | - Solve comparison word problems involving multiplication and division. Develop strategies for solving comparison word problems.<br>- Complete comparison statements based on information in a bar graph. Understand what a square number is.<br>- Describe patterns in the square numbers in the multiplication table.<br>- Practice 6s, 7s, and 8s multiplications and divisions.<br>- Choose the operation to solve a word problem.<br>- Write word problems for given equations.<br>- Develop strategies for solving multi-step word problems.<br>- Develop strategies for solving multi-step word problems.<br>- Develop strategies for solving multi-step word problems.<br>- Solve a variety of problems using mathematical concepts and skills.<br>- Use the mathematical processes of problem solving, connections, reasoning and proof, communication, and representation. |
| **Skills/ Benchmarks (CCSS Standards)** | - **3.OA.A.1:** Interpret products of whole numbers, e.g., interpret 5x7 as the total number of objects in 5 groups of 7 objects each.<br>- **3.OA.A.2:** Interpret whole number quotients of whole numbers, e.g., interpret 56÷8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of share when 56 objects are partitioned into equal shares of 8 objects each.<br>- **3.OA.A.3:** Use multiplication and division with 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problems.<br>- **3.OA.A.4**: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.<br>- **3.OA.C.7:** Fluently multiply and divide with 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8°\text{-}5=40$, one knows $40÷5=8$) or properties of operatio9ns. By the end of Grade 3, know from memory all product of two one digit numbers.<br>- **3.OA.D.8:** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Asses the reasonableness of answers using mental computation and estimation strategies including rounding.<br>- **3.OA.D.9**: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.<br>- **3.MD.C.7.B**: Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular area in mathematical reasoning. |

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| | - **3.MD.C.7.D**: Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles adding the areas of the non-overlapping parts, applying this technique to solve real world problems.<br>- **3.MD.D.8:** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or wit the same area and different perimeters.<br>- **Mathematical Practices** |
| **Materials and Resources** | - Math Expressions, Student Journals, Manipulatives, Math themed literature, BrainPop, IXL Mathematics |