**Course Description:**
During the first semester, students will build flexibility with numbers as they master addition and subtraction facts as well as multiplication and division facts. Students will understand relationships between addition and subtraction, multiplication and addition and multiplication and division as they learn to borrow, carry, and regroup in order to find sums and differences of two whole numbers. Students will also comprehend the place value of base ten numbers up to 1,000,000 in order to find patterns and make estimations. Students will be introduced to the concepts of fractions in terms of defining, comparing, and finding equivalent fractions. Lastly, they will implement a 5-step approach to solving word problems throughout the entire semester.

| Module | Lesson | Objectives |
|---|---|---|
| **Module 1: Relate Multiplication to Addition** | Equal Groups: Multiplication | • Use equal groups to multiply. |
| | Multiplication as Repeated Addition | • Relate repeated addition to multiplication. |
| | Skip Counting | • Relate skip counting to multiplication. |
| | Using a Number Line to Multiply | • Relate skip counting on a number line to multiplication. |
| | Problem Solving: Using Multiplication Strategies | • Apply multiplication strategies to solve word problems. |
| **Module 2: Multiplication** | Multiplication Expressions and Equations | • Identify multiplication sentences using pictures. |
| | Using Pictures to Multiply | • Draw pictures to represent multiplication. |
| | Using Arrays to Multiply | • Identify and construct arrays to solve multiplication equations. |
| | Using a Multiplication Chart to Multiply | • Use a multiplication chart to multiplication equations to find a product. |
| | Problem Solving: Applying Multiplication Strategies | • Apply multiplication strategies to solve word problems. |
| **Module 3: Relate Division** | Using Equal Groups to Divide | • Define division and use equal groups to divide. |
| | Division as Repeated Subtraction | • Relate repeated subtraction to division. |
| | Relate Multiplication and Division Using Pictures | • Construct pictures with equal groups to model multiplication and division. |

| Module | Lesson | Objectives |
|---|---|---|
| | Using Arrays to Relate Multiplication and Division | • Construct arrays to model multiplication and division. |
| | Problem Solving: Applying Division Strategies | • Create division sentences and solve them. |
| **Module 4: Division** | Explain Division | • Identify the parts of a division sentence. |
| | Use Pictures to Divide | • Draw pictures to represent division. |
| | Using Arrays to Divide | • Identify and construct arrays to solve division sentences. |
| | Dividing with Input/Output Tables | • Identify patterns in input/output tables to divide. |
| | Problem Solving: Reasoning with Division Facts | • Analyze division facts to solve word problems. |
| **Module 5: Place Value: Whole Numbers** | Compare and Order Numbers | • List a set of whole numbers from least to greatest or greatest to least. |
| | Round Whole Numbers | • Illustrate and report how to round the nearest 10 or 100. |
| | Add Whole Numbers | • Calculate the sums of 2-digit and 3-digit whole numbers. |
| | Subtract Whole Numbers | • Calculate the differences of 2-digit and 3-digit numbers from 3-digit whole numbers. |
| | Multiply Whole Numbers | • Calculate the products of one-digit whole numbers by multiples of 10 (through 90). |
| **Module 6: Problem Solve: Add and Subtract Within 1000** | Add Without Regrouping | • Calculate the sums of 2-digit and 3-digit numbers without regrouping. |
| | Add With Carrying to Regroup | • Calculate the sums of 2-digit and 3-digit numbers with regrouping. |
| | Subtraction Without Regrouping | • Calculate the differences of 2-digit and 3-digit numbers without regrouping. |
| | Subtract With Borrowing to Regroup | • Calculate the differences of 2-digit and 3-digit numbers with regrouping. |
| | Problem Solving: Add and Subtract | • Apply addition and subtraction concepts to solve word problems. |

| Module | Lesson | Objectives |
|---|---|---|
| **Module 7: Solve Two-Step Word Problems** | Represent an Unknown Quantity with a Letter or Symbol | • Construct and solve equations with a letter or symbol for the unknown number. |
| | Two-Step Word Problems: Addition and Subtraction | • Identify when to add or subtract to solve a two-step word problem.. |
| | Two-Step Word Problems: Multiplication and Division | • Determine the steps and operation of a two-step multiplication or division word problem. |
| | Two-Step word problems: all four operations | • Determine the steps and operations to use to solve a two-step word problem. |
| | Problem Solving: Reasonableness of Answers | • Define and use estimation strategies to solve a word problem. |
| **Module 8: Arithmetic Patterns** | Even and Odd Numbers | • Identify and use the properties of operations for addition and multiplication. |
| | Properties of Operations | • Identify number patterns in sums. |
| | Addition Table Patterns | • Identify number patterns in a multiplication table. |
| | Multiplication Table Patterns | • Identify how decomposing numbers can help when adding, subtracting and multiplying. |
| | Decomposing and Adjusting to Add and Subtract | • Identify and use the properties of operations for addition and multiplication. |
| **Module 9: Properties of Multiplication** | The Commutative Property of Multiplication | • Show that factors can be multiplied in any order using arrays. |
| | The Distributive Property of Multiplication | • Show that numbers can be broken up using arrays. |
| | The Associative Property of Multiplication | • Show that any number of factors can be multiplied in any order. |
| | Missing Factors | • Use a number line to find a missing factor in a multiplication equation. |
| | Multiplication Input and Output Tables | • Calculate products using an input/output table. |
| **Module 10:** | Multiplication Strategies Within 100 | • Use a variety of strategies to multiply within 100. |

| Module | Lesson | Objectives |
|---|---|---|
| **Solve Problems Involving Multiplication** | Represent Word Problems Using Pictures and Equations | • Construct pictures and equations to represent multiplication word problems. |
| | Solve Multiplication Situations and Quantities | • Analyze and solve multiplication word problems that have equal groups, arrays, and measurement quantities. |
| | Related Facts: | • Assess whether to multiply or divide to find an unknown number. |
| | Multiplication: Missing Numbers | • Calculate the unknown number in a multiplication equation. |
| **Module 11: Solve Problems Involving Division** | Division Strategies Within 100 | • Use a variety of strategies to multiply within 100. |
| | Represent Division Word Problems Using Pictures and Equations | • Construct pictures and equations to represent division word problems. |
| | Solve Division Situations and Quantities | • Analyze and solve division word problems that have equal groups, arrays, and measurement quantities. |
| | Related Facts: Division and Multiplication | • Assess whether to multiply or divide to find an unknown number. |
| | Division: Missing Numbers | • Calculate the unknown number in a division equation. |
| **Module 12: Multiplication Facts Part 1** | Multiply By 2 | • Calculate the products of multiplying numbers (0 - 10) by 2. |
| | multiply by 10 and 5 | • Calculate the products of multiplying numbers (0 - 10) by 10 and 5. |
| | Multiply by 1 and 0 | • Calculate the products of multiplying numbers 0 through 10 by 1 and 0. |
| | Multiply by 3 | • Calculate the products of multiplying numbers (0 – 10) by 3. |
| | Problem Solving: Reasoning with Multiplication Facts | • Solve multiplication word problems using facts for 0, 1, 2, 3, 5, and 10. |
| **Module 13: Multiplication Facts Part 2** | Multiply By 6 | • Calculate the products of multiplying numbers (0 – 10) by 6. |
| | Multiply by 9 | • Calculate the products of multiplying numbers (0 – 10) by 9. |
| | Multiply By 4 and 8 | • Calculate the products of multiplying numbers (0-10) by 4 and 8. |
| | Multiply by 7 | • Calculate the products of multiplying numbers (0-10) by 7. |

| Module | Lesson | Objectives |
|---|---|---|
| | Problem Solving: Reasoning with Multiplication Facts | • Solve multiplication word problems. |
| **Module 14: Division Facts 0-5** | Divide By 1 | • Calculate the quotients of dividing numbers (0 - 100) by 1. |
| | Divide By 2-3 | • Calculate the quotients of dividing numbers (0 - 100) by 2 and 3. |
| | Divide By 4-5 | • Calculate the quotients of dividing numbers (0 - 100) by 4 and 5. |
| | Division Facts 1-5 Review | • Recognize and calculate the quotients of numbers 1 to 5. |
| | Problem Solving: Reasoning with Division Facts | • Analyze and solve division word problems using math facts. |
| **Module 15: Division Facts 6-10** | Divide By 6-7 | • Calculate the quotients of dividing numbers (0 - 100) by 6 and 7. |
| | Divide By 8 | • Calculate the quotients of dividing numbers (0 - 100) by 8. |
| | Divide By 9 | • Calculate the quotients of dividing numbers (0 - 100) by 9. |
| | Divide By 10 | • Calculate the quotients of dividing numbers (0 - 100) by 10. |
| | Divide By 6-10 | • Recognize and calculate the quotients of numbers 6 to 10. |
| **Module 16: Fractions** | Unit Fractions | • Identify a unit fraction as 1 part of a whole divided into equal parts. |
| | Non-Unit Fractions | • Identify non-unit fractions as fractions composed of more than one unit fraction. |
| | Numerator and Denominator | • Identify numerators and denominators in a variety of ways. |
| | Fractions of a Whole | • Identify the fraction of a whole. |
| | Fractions of a Group | • Identify the numerators and denominators of fractions of a group. |
| **Module 17: Fractions on a Number Line** | 0 to 1 on a Number Line | • Define a whole and fractions on a number line. |
| | Equal Parts | • Construct a partitioned whole on a number line. |
| | Fractions on a Number Line | • Identify fractions on a number line. |
| | Problem Solve: Reasoning with Fractions | • Identify number lines that show different fractions. |

| Module | Lesson | Objectives |
|---|---|---|
| | Word Problems with Fractions | • Analyze and solve fraction word problems with a number line. |
| **Module 18: Equivalent Fractions** | Equivalent Fractions | • Define and show equivalent fractions. |
| | Find Equivalent Fractions | • Recognize simple equivalent fractions |
| | Fraction Pie | • Construct equivalent fractions. |
| | Draw Fractions | • Create models to represent different equivalent fractions. |
| | Problem Solving with Fractions | • Analyze and solve fraction word problems with equivalent fractions. |