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A Planning Guide of

enVision® Mathematics

To the

Michigan Standards for Mathematics
Grade 4

**A Planning Guide of enVision Mathematics Common Core ©2020
to the Michigan Standards for Mathematics
Grade 4**

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Lesson 6-3: Model Multi-Step Problems: 233-236	**4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.OA.A.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. **4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP1:** Make sense of problems and persevere in solving them. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.
Lesson 6-4: More Model Multi-Step Problems: 237-240	**4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.OA.A.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. **4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP4:** Model with mathematics. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Lesson 6-5: Solve Multi Step Problems: 241-244	**4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.OA.A.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. **4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.
Lesson 6-6: Problem Solving: Make Sense and Persevere: 245-248	**4.OA.A.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP1:** Make sense of problems and persevere in solving them. **Math Practice MP5:** Use appropriate tolls strategically.

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Fluency Practice Activity: 249	**4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.
Topic Performance Task: 255-256	**4.OA.A.2:** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP4:** Model with mathematics. **Math Practice MP2:** Reason abstractly and quantitatively.

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Topic 7: Factors and Multiples	
Lesson 7-1: Understand Factors: 261-264	**4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP2:** Reason abstractly and quantitatively.
Lesson 7-2 Factors: 265-268	**4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP1:** Make sense of problems and persevere in solving them. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.

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Lesson 7-3: Problem Solving: Repeated Reasoning: 269-272	**4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP8:** Look for and express regularity in repeated reasoning. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Lesson 7-4 Prime and Composite Numbers: 273-276	**4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.

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Lesson 7-5 Multiples: 277-281	**4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.
Fluency Practice Activity: 281	**4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP6:** Attend to precision.
Topic Performance Task: 287-288	**4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP4:** Model with mathematics.

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Topic 8: Extend Understanding of Fraction Equivalence and Ordering	
Lesson 8-1: Equivalent Fractions: Area Models: 293-296	**4.NF.A.1:** Explain why a fraction *a/b* is equivalent to a fraction *(n × a)/(n × a)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Lesson 8-2: Equivalent Fractions: Number Lines: 297-300	**4.NF.A.1:** Explain why a fraction *a/b* is equivalent to a fraction *(n × a)/(n × a)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Lesson 8-3: Generate Equivalent Fractions: Multiplication: 301-304	**4.NF.A.1:** Explain why a fraction *a/b* is equivalent to a fraction *(n × a)/(n × a)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP4:** Model with mathematics. **Math Practice MP2:** Reason abstractly and quantitatively.

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Lesson 8-4: Generate Equivalent Fractions: Division: 305-308	**4.NF.A.1:** Explain why a fraction *a/b* is equivalent to a fraction *(n x a)/(n x a)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **Math Practice MP6:** Attend to precision. **Math Practice MP4:** Model with mathematics.
Lesson 8-5: Use Benchmarks to Compare Fractions: 309-312	**4.NF.A.2:** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.

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Lesson 8-6: Compare Fractions: 313-316	**4.NF.A.2:** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **4.NF.A.1** Explain why a fraction *a/b* is equivalent to a fraction *(n x a)/(n x a)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.

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Lesson 8-7: Problem Solving: Construct Arguments: 317-320	**4.NF.A.1** Explain why a fraction *a/b* is equivalent to a fraction *(n x a)/(n x a)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **4.NF.A.2:** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Fluency Practice Activity: 321	**4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.

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Topic Performance Task: 327-328	**4.NF.A.1** Explain why a fraction *a/b* is equivalent to a fraction *(n x a)/(n x a)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **4.NF.A.2:** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP4:** Model with mathematics.
Topic 9: Understand Addition and Subtraction of Fractions	
Lesson 9-1: Model Addition of Fractions: 333-336	**4.NF.B.3a:** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Lesson 9-2: Decompose Fractions: 337-340	**4.NF.B.3b:** Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Example: Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP4:** Model with mathematics.

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Lesson 9-3: Add Fractions with Like Denominators: 341-344	**4.NF.B.3a:** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP4:** Model with mathematics. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.
Lesson 9-4: Model Subtraction of Fractions: 345-348	**4.NF.B.3a:** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP4:** Model with mathematics.
Lesson 9-5: Subtract Fractions with Like Denominators: 349-352	**4.NF.B.3a:** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP4:** Model with mathematics.

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Lesson 9-6: Add and Subtract Fractions with Like Denominators: 353-356	**4.NF.B.3a:** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP4:** Model with mathematics.
Lesson 9-7: Model Addition and Subtraction of Mixed Numbers: 357-360	**4.NF.B.3c:** Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP2:** Reason abstractly and quantitatively.
Lesson 9-8: Add Mixed Numbers: 361-364	**4.NF.B.3c:** Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP8:** Look for and express regularity in repeated reasoning. **Math Practice MP2:** Reason abstractly and quantitatively.

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Lesson 9-9: Subtract Mixed Numbers: 365-368	**4.NF.B.3c:** Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP8:** Look for and express regularity in repeated reasoning. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Lesson 9-10: Problem Solving: Model with Math: 369-372	**4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **4.NF.B.3a:** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. **4.NF.B.3c:** Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. **Math Practice MP4:** Model with mathematics. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Fluency Practice Activity: 373	**4.NF.B.4:** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.

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Topic Performance Task: 379-380	**4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **4.NF.B.3c:** Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Topic 10: Extend Multiplication Concepts to Fractions	
Lesson 10-1: Fractions as Multiples of Unit Fractions: 385-388	**4.NF.B.4a:** Understand a fraction a/b as a multiple of $1/b$. Example: For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4). **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP4:** Model with mathematics.

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Lesson 10-2: Multiply a Fraction by a Whole Number: Use Models: 389-392	**4.NF.B.4b:** Understand a multiple of *a/b* as a multiple of *1/b*, and use this understanding to multiply a fraction by a whole number. Example: For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, *n* × (*a/b*) = *n x a*)/*b*.) **4.NF.B.4a:** Understand a fraction *a/b* as a multiple of *1/b*. Example: For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4). **4.NF.B.4c:** Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. Example: For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie? **Math Practice MP4:** Model with mathematics. **Math Practice MP7:** Look for and make use of structure.
Lesson 10-3: Multiply a Fraction by a Whole Number: Use Symbols: 393-396	**4.NF.B.4b:** Understand a multiple of *a/b* as a multiple of *1/b*, and use this understanding to multiply a fraction by a whole number. Example: For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, *n* × (*a/b*) = *n x a*)/*b*.) **4.NF.B.4a:** Understand a fraction *a/b* as a multiple of *1/b*. Example: For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4). **4.NF.B.4c:** Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. Example: For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie? **Math Practice MP7:** Look for and make use of structure. **Math Practice MP4:** Model with mathematics.

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Lesson 10-4: Solve Time Problems: 397-400	**4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **4.NF.B.3c:** Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Lesson 10-5: Problem Solving: Model with Math: 401-404	**4.NF.B.4c:** Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. Example: For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie? **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **Math Practice MP4:** Model with mathematics. **Math Practice MP2:** Reason abstractly and quantitatively.
Fluency Practice Activity: 405	**4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP4:** Model with mathematics. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.

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Topic Performance Task: 411-412	**4.NF.B.4a:** Understand a fraction *a/b* as a multiple of *1/b.* Example: For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4). **4.NF.B.4b:** Understand a multiple of *a/b* as a multiple of *1/b*, and use this understanding to multiply a fraction by a whole number. Example: For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, *n* × (*a/b*) = *n x a*)/*b*.) **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **Math Practice MP4:** Model with mathematics. **Math Practice MP2:** Reason abstractly and quantitatively.
Topic 11: Represent and Interpret Data on Line Plots	
Lesson 11-1: Read Line Plots: 417-420	**4.MD.B.4:** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. Example: For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP4:** Model with mathematics. **Math Practice MP2:** Reason abstractly and quantitatively.

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Lesson 11-2: Make Line Plots: 421-424	**4.MD.B.4:** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. Example: For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. **4.NF.A.1** Explain why a fraction *a/b* is equivalent to a fraction *(n × a)/(n × a)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. **4.NF.A.2:** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. **Math Practice MP8:** Look for and express regularity in repeated reasoning. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Lesson 11-3: Use Line Plots to Solve Problems: 425-428	**4.MD.B.4:** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. Example: For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Lesson 11-4: Problem Solving: Critique Reasoning: 429-432	**4.MD.B.4:** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. Example: For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. **4.NF.B.3c:** Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. **4.NF.B.3d:** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP2:** Reason abstractly and quantitatively.
Fluency Practice Activity: 433	**4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.
Topic Performance Task: 439-440	**4.MD.B.4:** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. Example: For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP4:** Model with mathematics.

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Topic 12: Understand and Compare Decimals	
Lesson 12-1: Fractions and Decimals: 445-448	**4.NF.C.6:** Use decimal notation for fractions with denominators 10 or 100. Example: For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram. **Math Practice MP4:** Model with mathematics. **Math Practice MP2:** Reason abstractly and quantitatively.
Lesson 12-2: Fractions and Decimals on the Number Line: 449-452	**4.NF.C.6:** Use decimal notation for fractions with denominators 10 or 100. Example: For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram. **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Lesson 12-3: Compare Decimals: 453-456	**4.NF.C.7:** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.
Lesson 12-4: Add Fractions with Denominators of 10 and 100: 457-460	**4.NF.C.5:** Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Lesson 12-5: Solve Word Problems Involving Money: 461-464	**4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Lesson 12-6: Problem Solving: Look For and Use Structure: 465-468	**4.NF.C.7:** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Fluency Practice Activity: 469	**4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP6:** Attend to precision.
Topic Performance Task: 475-476	**4.NF.C.6:** Use decimal notation for fractions with denominators 10 or 100. Example: For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram. **4.NF.C.7:** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. **Math Practice MP4:** Model with mathematics. **Math Practice MP7:** Look for and make use of structure.

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Topic 13: Measurement: Find Equivalence in Units of Measure	
Lesson 13-1: Equivalence with Customary Units of Length: 481-484	**4.MD.A.1:** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. Example: For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),... **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP6:** Attend to precision.

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Lesson 13-2: Equivalence with Customary Units of Capacity: 485-488	**4.MD.A.1:** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. Example: For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),... **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **SS.Math.Practice.MP8:** Look for and express regularity in repeated reasoning. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Lesson 13-3: Equivalence with Customary Units of Weight: 489-492	**4.MD.A.1:** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. Example: For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),... **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **Math Practice MP6:** Attend to precision. **SS.Math.Practice.MP8:** Look for and express regularity in repeated reasoning.

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Lesson 13-4: Equivalence with Metric Units of Length: 493-496	**4.MD.A.1:** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. Example: For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),... **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.

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Lesson 13-5: Equivalence with Metric Units of Capacity and Mass: 497-500	**4.MD.A.1:** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. Example: For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),... **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **Math Practice MP8:** Look for and express regularity in repeated reasoning. **Math Practice MP2:** Reason abstractly and quantitatively.

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Lesson 13-6: Solve Perimeter and Area Problems: 501-504	**4.MD.A.3:** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. Example: For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. **4.NF.B.4c:** Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. Example: For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie? **Math Practice MP1:** Make sense of problems and persevere in solving them. **Math Practice MP2:** Reason abstractly and quantitatively.
Lesson 13-7: Problem Solving: Precision: 505-508	**4.MD.A.3:** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. Example: For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.NF.B.4c:** Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. Example: For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie? **Math Practice MP6:** Attend to precision. **Math Practice MP2:** Reason abstractly and quantitatively.

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Fluency Practice Activity: 509	**4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.
Topic Performance Task: 515-516	**4.MD.A.1:** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. Example: For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36),... **4.MD.A.2:** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP4:** Model with mathematics.

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Topic 14: Algebra: Generate and Analyze Patterns	
Lesson 14-1: Number Sequences: 521-524	**4.OA.C.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Example: For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. **4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP7:** Look for and make use of structure.

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Lesson 14-2: Patterns: Number Rules: 525-528	**4.OA.C.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. **4.OA.B.4:** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP4:** Model with mathematics.

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Lesson 14-3: Patterns: Repeating Shapes: 529-532	**4.OA.C.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.NBT.B.6:** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.
Lesson 14-4: Problem Solving: Look for and Use Structure: 533-536	**4.OA.C.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Fluency Practice Activity: 537	**4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.
Topic Performance Task: 543-544	**4.OA.C.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Example: For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. **4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **4.NBT.B.5:** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP2:** Reason abstractly and quantitatively.
Topic 15: Geometric Measurement: Understand Concepts of Angles and Angle Measurement	
Lesson 15-1: Lines, Rays, and Angles: 549-552	**4.G.A.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP6:** Attend to precision.

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Lesson 15-2: Understand Angles and Unit Angles: 553-556	**4.MD.C.5a** An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. **4.NF.A.1:** Explain why a fraction a/b is equivalent to a fraction $(n × a)/(n × b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions**.** **4.NF.B.3b:** Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Example: Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8. **Math Practice MP1:** Make sense of problems and persevere in solving them. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.
Lesson 15-3: Measure with Unit Angles: 557-560	**4.MD.C.5b:** An angle that turns through n one-degree angles is said to have an angle measure of n degrees. **4.MD.C.5a** An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Lesson 15-4: Measure and Draw Angles: 561-564	**4.MD.C.6:** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. **4.MD.C.5b:** An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.
Lesson 15-5: Add and Subtract Angle Measures: 565-568	**4.MD.C.7:** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. **4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP1:** Make sense of problems and persevere in solving them.

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Lesson 15-6: Problem Solving: Use Appropriate Tools: 569-572	**4.MD.C.6:** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. **4.OA.A.3:** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. **4.MD.C.7:** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. **Math Practice MP5:** Use appropriate tolls strategically. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Fluency Practice Activity: 573	**4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP6:** Attend to precision.

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Topic Performance Task: 579-580	**4.G.A.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **4.MD.C.6:** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. **4.MD.C.7:** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. **Math Practice MP2:** Reason abstractly and quantitatively. **Math Practice MP6:** Attend to precision.
Topic 16: Lines, Angles, and Shapes	
Lesson 16-1: Lines: 585-588	**4.G.A.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **Math Practice MP6:** Attend to precision. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.

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Lesson 16-2: Classify Triangles: 589-592	**4.G.A.2:** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **4.OA.C.5:** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Example: For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way. **4.G.A.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **Math Practice MP8:** Look for and express regularity in repeated reasoning. **Math Practice MP2:** Reason abstractly and quantitatively.
Lesson 16-3: Classify Quadrilaterals: 593-596	**4.G.A.2:** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **4.G.A.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **Math Practice MP7:** Look for and make use of structure. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others.

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Lesson 16-4: Line Symmetry: 597-600	**4.G.A.3:** Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP2:** Reason abstractly and quantitatively.
Lesson 16-5: Draw Shapes with Line Symmetry: 601-604	**4.G.A.3:** Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP1:** Make sense of problems and persevere in solving them.
Lesson 16-6: Problem Solving: Critique Reasoning: 605-608	**4.G.A.2:** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **4.MD.A.3:** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. Example: For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. **4.G.A.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP2:** Reason abstractly and quantitatively.

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Fluency Practice Activity: 609	**4.NBT.B.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.
Topic Performance Task: 615-616	**4.G.A.1:** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. **4.G.A.2:** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **4.G.A.3:** Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. **Math Practice MP3:** Construct viable arguments and critique the reasoning of others. **Math Practice MP6:** Attend to precision.