OCSD Fourth Grade Planning Guide for Math Expressions: Common Core

Notes:
• Please note: many lessons are intended for multiple days to provide depth and reinforcement.
• Many math activity suggestions are posted on the OCSD website. These activities are optional supplements to be used in addition to the core lessons from Math Expressions: Common Core. Teachers can choose activities based on student instructional needs and available time.
• Pacing guidance for 2018-19 (Google Doc)

MATH EXPRESSIONS RESOURCES FOR ALL UNITS:
• Differentiation Cards
• Challenge Easel (spiral bound easel with 4 challenge problems for each unit)
• Assessment Guide (Math Expressions book)
  o Quick Quiz for each Big Idea
• District Assessments (OCSD Website)
• Response to Intervention Tier 1 and Tier 2/3 (Math Expressions book)
• Homework and Remembering (Math Expressions book and available by unit through the IMC on OCSD Website)
• MegaMath Games (OCSD Website)
• Interactive Whiteboard Lessons and other resources (www.thinkcentral.com)

Grade 4 Math Priority Content

Priority Targets (approximately 75% of the Claim 1 CAT items):
A. Use the four operations with whole numbers to solve problems. (Units 1-4)
E. Use place value understanding and properties of operations to perform multi-digit arithmetic. (Units 1-4)
D. Generalize place value understanding for multi-digit whole numbers. (Units 1-4)
G. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. (Unit 6)
F. Extend understanding of fraction equivalence and ordering. (Unit 7)
H. Understand decimal notation for fractions, and compare decimal fractions. (Unit 7)

Supporting Targets (approximately 25% of the Claim 1 CAT items):
I. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. (Unit 5)
K. Geometric measurement: understand concepts of angle and measure angles. (Unit 8)
B. Gain familiarity with factors and multiples. (Unit 4 lesson 10)
C. Generate and analyze patterns. (Unit 4 lesson 11)
J. Represent and interpret data. (Unit 4 lesson 6, Unit 7 lesson 7)
L. Draw and identify lines and angles, and classify shapes by properties of their lines and angles. (Unit 8)

Bottom Line: Focus on Units 1-4, do Unit 5 quickly, slow down in Units 6-7, preview Angles with the packet linked above before testing, but save Unit 8 for last.

OCSD, Updated June, 2018
## Unit 1 (Place Value and Multi-digit Addition and Subtraction)

**MONTH:** September  
Pacing Recommendation: 20 days (may end in early October)  
Note: 1 day = 60 minute Core lesson (including differentiation)  

**OCSD ADOPTED CURRICULUM (required):**  
- Math Expressions: Common Core Unit 1  
  (Place Value and Multi-digit Addition and Subtraction)  
  - Big Idea 1: Place Value to One Million (Lessons 1-5)  
    QUICK QUIZ 1 (Quick Quizzes follow each Big Idea)  
  - Big Idea 2: Addition with Greater Numbers  (Lessons 6-8)  
    QUICK QUIZ 2 (Quick Quizzes follow each Big Idea)  
  - Big Idea 3: Subtraction with Greater Numbers  (Lessons 9-14)  
    QUICK QUIZ 3 (Quick Quizzes follow each Big Idea)

**Bold codes are OCSD Priority Standards, chosen 4/13/15.**

**Standards:**

- Use place value understandings to read, write, compare, and round multi-digit whole numbers to the millions (SBAC TARGET D, DOK 1, 2)  
- **4.NBT.1** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*  
- **4.NBT.3** Use place value understanding to round multi-digit whole numbers to any place.

- Perform multi-digit addition and subtraction using models, place value understandings, and properties of operations (SBAC TARGET E, DOK 1, 2)  
- **4.NBT.4** Fluently add and subtract multi-digit whole numbers using the standard algorithm.

Addition and Subtraction Progressions Video to share with parents: [https://vimeo.com/157768846](https://vimeo.com/157768846)

**Suggested Assessments:**

- Use place value understandings to read, write, compare, and round multi-digit whole numbers to the millions  
  Unit 1 Quick Quiz 1 (Page 16 of Assessment Guide)  
  Unit 1 Test #3, 6-13 (Pages 19-22 of Assessment Guide)  
  Unit 1 Activity: Track Blog Traffic (Page 28 of Assessment Guide)  

- Perform multi-digit addition and subtraction using models, place value understandings, and properties of operations  
  Unit 1 Quick Quiz 2 (Page 17 of Assessment Guide)  
  Unit 1 Quick Quiz 3 (Page 18 of Assessment Guide)  
  Unit 1 Test #1-2, 4-5, 14-20 (Pages 19-22 of Assessment Guide)
**SBAC Vocabulary:**

**Target D:** nearest ten, nearest hundred, nearest thousand, nearest ten thousand, nearest hundred thousand, ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions  
**Target E:** sum, difference, product, expression, equation, equal, partial product, quotient, partial quotient, remainder, multiple

**Sentence frames:**
The expanded form of ____ is _____. The value of the digit ____ is ____.

**SUPPLEMENTAL RESOURCES (optional):**
- Bridges Supplement (A1) – Estimating to Add & Subtract (OCSD Website)  
- RTI Tier 1 Book Lessons 15-19  
- RTI Tier 2/3 Book Lessons 1-10  
- Math Literature Library: Sold! A Mathematics Adventure  
- Digging Into Math ©2014 (Red) Unit B1 Lessons 1-3  
- Number Worlds (ERC): Level F, Unit 1 (Number Sense)  

**SUB-SKILLS:**
- Reading & writing numbers into the billions  
- Place value, expanded notation, and values of a given digit into the billions  
- Comparing & ordering numbers  
- Addition & subtraction w/ regrouping  
- Estimation strategies (rounding, friendly numbers / benchmark numbers)

**INSTRUCTIONAL NOTES:**
- Connect place value concepts to base 10 block manipulatives.  
- Consider ELA Connections to Reach for Reading Unit 1: Living Traditions
## Unit 2 (Multiplication with Whole Numbers)

**MONTH:** October – mid-November  
Pacing Recommendation: 26 days  
Note: 1 day = 60 minute Core lesson (including differentiation)

### Standards:

Perform multi-digit multiplication using models, place value understandings, and properties of operations  
(SBAC TARGET E, DOK 1, 2)  

**4.NBT.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.

### OCSD ADOPTED CURRICULUM (required):

- Math Expressions: Common Core Unit 2  
  (Multiplication with Whole Numbers)
  
  - Big Idea 1: Multiplication with Tens and Hundreds  
    (Lessons 1-3)
  
  - Big Idea 2: Multiply by One-Digit Numbers  
    (Lessons 4-11; 10 may take 2 days)
  
  - Big Idea 3: Multiplication with Two-Digit Numbers  
    (Lessons 12-15)
  
  - Big Idea 4: Multiplication with Thousands  
    (Lessons 16-19)

### Multiplication Progressions Video to share with parents:

[https://vimeo.com/149428217](https://vimeo.com/149428217)

### Suggested Assessments:

Perform multi-digit multiplication using models, place value understandings, and properties of operations  

- Unit 2 Quick Quiz 1 (Page 30 of Assessment Guide)  
- Unit 2 Quick Quiz 2 (Page 31 of Assessment Guide)  
- Unit 2 Quick Quiz 3 (Page 32 of Assessment Guide)  
- Unit 2 Quick Quiz 4 (Page 33 of Assessment Guide)  
- Unit 2 Test (Pages 34-37 of Assessment Guide)  
- Unit 2 Activity: Shop for a Clothing Drive (Page 43 of Assessment Guide)  
- PS Task: Bridge Toll (4.NBT.5, 4.OA.3)
SBAC Vocabulary:

**Target E:** sum, difference, product, expression, equation, equal, partial product, quotient, partial quotient, remainder, multiple

Sentence frames:
I prefer the ___ method because ___.
I calculated ___ by ___.

SUPPLEMENTAL RESOURCES (optional):
- Bridges Supplement (A5) – Multi-digit Multiplication Using the Area Model (OCSD Website)
- Bridges Supplement (A8) – Number Properties: Commutative, Associative, Distributive (OCSD Website)
- Digging Into Math ©2014 (Red) Unit B1 Lessons 6-7
- RTI Tier 1 Book Lessons 23-36
- RTI Tier 2/3 Book Lessons 30-54
- Math Literature Library: Rabbits Rabbits Everywhere: A Fibonacci Tale
- Number Worlds (ERC): Level F, Unit 1 (Number Sense)
- 3 Act Task, Arraybow of colors; 4.NBT.5: http://gfletchy.com/arraybow-of-colors/

SUB-SKILLS:
- Select appropriate estimation strategies (benchmark numbers, overestimate, underestimate)
- Use extension facts (multiplying by multiples of 10)
- Familiarity with partial products algorithm / area model of multiplication
- Multiply multi-digit numbers (1 digit x 4 digit, 2 digit x 2 digit, 2 digit x 3 digit)

INSTRUCTIONAL NOTES:
- Connect place value concepts to base 10 block manipulatives.
- Consider ELA Connections to Reach for Reading Unit 2: Animal Intelligence
## Unit 3 (Division with Whole Numbers)

**MONTH:** mid-November - December  
Pacing Recommendation: 17 days  
Note: 1 day = 60 minute Core lesson (including differentiation)

### Standards:
Develop understandings of division with multi-digit numbers, including interpreting the remainder in real-world situations (SBAC TARGETS A/E, DOK 1, 2)

4.NBT.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.

Division Progressions Video to share with parents:  
[https://vimeo.com/153668928](https://vimeo.com/153668928)

### OCSD ADOPTED CURRICULUM (required):
- Math Expressions: Common Core Unit 3 (Division with Whole Numbers)
  - Big Idea 1: Dividing Whole Numbers (Lessons 1-6, 1 and 4 may take 2 days)
  - Big Idea 2: Division Ideas and Word Problems (Lessons 7-11)

### Suggested Assessments:
- Unit 3 Quick Quiz 1 (Page 45 of Assessment Guide)
- Unit 3 Quick Quiz 2 (Page 46 of Assessment Guide)
- Unit 3 Test (Pages 47-50 of Assessment Guide)
- Unit 3 Activity: Make a Reading Plan (Page 56 of Assessment Guide)
### SBAC Vocabulary:

**Target A:** remainder, sum, difference, quotient, product, equation, times, as much, times as many, equation

### Sentence frames:

In the division problem ___, the divisor is __, the dividend is __, and the quotient is ___.

For this problem, the situation equation is ___ and the solution equation is ___.

### SUB-SKILLS:

- Solve multi-step word problems using all 4 operations
- Justify the answer to a division calculation using models
- Interpret the remainder in a problem situation
- Division by up to 4 digits by 1 digit

### SUPPLEMENTAL RESOURCES (optional):

- Origo Games: Left Overs (green book, pg. 48-51)
- RTI Tier 1 Book Lessons 37-46
- RTI Tier 2/3 Book Lessons 55-63
- Math Literature Library: A Remainder of One
- Digging Into Math ©2014 (Red) Unit B1 Lessons 8-9
- Number Worlds (ERC): Level F, Unit 4 (Multiplication) OR Level G, Unit 3 (Multiplication)

### INSTRUCTIONAL NOTES:

- These lessons are critical for developing the conceptual foundation students will need for success in 5th grade.
- Students should be taught to represent the remainder as a fraction, instead of with R. (e.g. $32 \div 5 = 6 \frac{2}{5}$ NOT $6 \text{ r. } 2$)
- Interpretation of a remainder requires the context of a word problem. Students must decide whether to round up, round down, or include the remainder as a fraction or decimal depending on the problem situation.
- Consider ELA Connections to Reach for Reading Unit 3: Amazing Places
**Unit 4 (Equations and Word Problems)**

**MONTH:** January  
Pacing Recommendation: 20 days  
Note: 1 day = 60 minute Core lesson (including differentiation)

**Standards:**
Use the four operations to solve multi-step word problems, including situations with a variable for the unknown quantity (SBAC TARGET A, DOK 1, 2)

4.OA.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.

Supporting Standard:
4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

**OCSD ADOPTED CURRICULUM (required):**
- Math Expressions: Common Core Unit 4 (Equations and Word Problems)
  - Big Idea 1: Reasoning and Solving Problems (Lessons 1-3; 2 may take 2 days)
  - Big Idea 2: Comparison Word Problems (Lessons 4-6, 5 may take 2 days)
  - Big Idea 3: Problems with More Than One Step (Lessons 7-9)
  - Big Idea 4: Analyzing Patterns (Lessons 10-12)
### 4.OA.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. (See Glossary)

### 4.OA.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.

(SBAC TARGET B, DOK 1)

### 4.OA.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.

(SBAC TARGET C, DOK 2, 3)

#### SBAC Vocabulary:
- **Target A**: remainder, sum, difference, quotient, product, equation, times, as much, times as many, equation
- **Target B**: whole number, prime composite, factor, factor pair, multiple
- **Target C**: pattern

#### Sentence frames:
The pattern is a sequence of ____.
The repeating terms of the pattern are ____.

#### SUB-SKILLS:
- Identify the meaning of an operation in context
- Solve two-step word problems using all four operations
- Use a variable to represent the unknown quantity in an equation

#### Suggested Assessments:
Use the four operations to solve multi-step word problems, including situations with a variable for the unknown quantity
- Unit 4 Quick Quiz 3 (Page 60 of Assessment Guide)
- Unit 4 Test #24-25 (Pages 62-65 of Assessment Guide)
- Unit 4 Activity: Find Their Ages (Page 71 of Assessment Guide)

#### PS Task: Sleepy Animals (4.OA.3)

#### SUPPLEMENTAL RESOURCES (optional):
- RTI Tier 1 Book Lessons 1-14, 20-22
- RTI Tier 2/3 Book Lessons 64-65
- Math Literature Library: O, Say Can You See?
- Digging Into Math ©2014 (Red) Unit B1 Lessons 3-5, 10-12
- Number Worlds (ERC): Level F, Unit 4 (Multiplication) OR Level G, Unit 3 (Multiplication)
- For 4.OA.5: [http://www.visualpatterns.org/]

#### INSTRUCTIONAL NOTES:
- Consider NGSS Connections to 4-ESS3 Earth and Human Activity, 4-PS3 Energy, and 3-5-ETS1 Engineering Design
- Consider ELA Connections to Reach for Reading Unit 4: Power of Nature
**Unit 5 (Measurement)**

**MONTH**: February  
Pacing Recommendation: 13 days  
Note: 1 day = 60 minute Core lesson (including differentiation)

**Standards:**
Solve real-world problems involving area and perimeter, including measurement conversions  
(SBAC TARGET I, DOK 1, 2)  
4.MD.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.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. 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.  

**Supporting Standard:**  
4.MD.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. 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), ...

**OCSD ADOPTED CURRICULUM (required):**
- Math Expressions: Common Core Unit 5 (Measurement)  
  - Big Idea 1: Converting Measurements (Lessons 1-5; 3 may take 2 days)  
  - Big Idea 2: Perimeter and Area (Lessons 6-8)

**Suggested Assessments:**
Solve real-world problems involving area and perimeter, including measurement conversions  
Unit 5 Quick Quiz 1 (Page 73 of Assessment Guide)  
Unit 5 Quick Quiz 2 (Page 74 of Assessment Guide)  
Unit 5 Test (Pages 75-78 of Assessment Guide)  
Unit 5 Activity: Patio Design Plans (Page 84 of Assessment Guide)  
PS Tasks: Morgan’s Patio, Goat Pen, Playground, Bigger Room (4.MD.3)  
Playground Performance Task (OCSD Web Site)
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<tr>
<th>SBAC Vocabulary:</th>
<th>SUPPLEMENTAL RESOURCES (optional):</th>
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<tbody>
<tr>
<td><strong>Target I:</strong> equivalent, mass, volume, interval, area, perimeter, square units</td>
<td>• Bridges Supplement (D4) – Introducing Area of Rectangles w/ Customary Units (OCSD Website)</td>
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<td><strong>Sentence Frames:</strong> Since there are ___ in one ___, I ___ to find ___. I calculated ___ by using the formula ___.</td>
<td>• Bridges Supplement (D5) – Area of Rectangles w/ Metric Units (OCSD Website)</td>
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<td>• Bridges Supplement (D6) – Area &amp; Perimeter (OCSD Website)</td>
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<td>• Digging Into Math ©2014 (Red) Unit B1 Lessons 13-14</td>
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<td>• RTI Tier 1 Book Lessons 76-91</td>
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<td>• RTI Tier 2/3 Book Lessons 90-111</td>
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<td>• Math Literature Library: The Math Chef</td>
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<td>• Number Worlds (ERC): Level G, Unit 1 (Number Sense)</td>
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<td>• 3 Act Task, Halfway to Hawai’i; 4.MD.2: <a href="http://www.livebinders.com/play/play_or_edit?id=330579">www.livebinders.com/play/play_or_edit?id=330579</a></td>
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**SB-SKILLS:**
- Identify base & height in a figure
- Calculate perimeter & area of rectangular figures
- Use area relationships to find the length of an unknown side
- Explain why a square unit is the standard for measuring area
- Subdivide complex figures into rectangles
- Identify perimeter / area situation from a word problem
- Understand the relationship between changes in area & perimeter

**INSTRUCTIONAL NOTES:**
- 4th grade needs to focus on solving complex area/perimeter problems
- Consider NGSS connections to 4-ESS1 Earth’s Place in the Universe
- Consider ELA Connections to Reach for Reading Unit 5: Invaders
### Unit 6 (Fraction Concepts and Operations)

**MONTH:** March – April  
Pacing Recommendation: 16 days  
Note: 1 day = 60 minute Core lesson (including differentiation)

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<tr>
<th>Standards:</th>
<th>OCSD ADOPTED CURRICULUM (required):</th>
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<tr>
<td>Use unit fractions to add and subtract fractions with like denominators or multiply fractions by whole numbers (SBAC TARGET G, DOK 1, 2)</td>
<td>• Math Expressions: Common Core Unit 6 (Fraction Concepts and Operations)</td>
</tr>
</tbody>
</table>
| 4.NF.3  Understand a fraction $a/b$ with $a > 1$ as a sum of fractions $1/b$.  
  a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.  
  b. 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. *Examples:* $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.  
  c. 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.  
  d. 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. | o Big Idea 1: Fractions with Like Denominators (Lessons 1-3) |
| 4.NF.4  Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.  
  a. Understand a fraction $a/b$ as a multiple of $1/b$. *For example,* use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.  
  b. Understand a multiple of $a/b$ as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. *For example,* use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. *(In general, $n \times (a/b) = (n \times a)/b$.)  
  c. 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. *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? | o Big Idea 2: Mixed Numbers with Like Denominators (Lessons 4-6; 6 may take 2 days) |
| o Big Idea 3: Multiplying Fractions and Whole Numbers (Lessons 7-10) | o Big Idea 3: Multiplying Fractions and Whole Numbers (Lessons 7-10) |

**Suggested Assessments:**

- Use unit fractions to add and subtract fractions with like denominators or multiply fractions by whole numbers  
  - Unit 6 Quick Quiz 1 (Page 86 of Assessment Guide)  
  - Unit 6 Quick Quiz 2 (Page 87 of Assessment Guide)  
  - Unit 6 Quick Quiz 3 (Page 88 of Assessment Guide)  
  - Unit 6 Test (Pages 89-92 of Assessment Guide)  
  - Unit 6 Activity: Mixing Paint (Page 98 of Assessment Guide)
### SBAC Vocabulary:

**Target G:** equation, expression, equal, fraction, model, product, numerator  

**Sentence Frames:**  
The multiplication problem ___ can be written as ___ with addition.

### SUPPLEMENTAL RESOURCES (optional):

- Bridges Supplement (A9) – Adding & Subtracting Fractions on the Number Line (OCSD Website)  
- Bridges Supplement (A6) – Equivalent Fractions w/ Mixed Numbers (OCSD Website)  
- Origo Games: One-on-One, (red book, pg. 44-47)  
- RTI Tier 1 Book Lessons 55-69  
- RTI Tier 2/3 Book Lessons 82-86  
- Math Literature Library: Fraction Fun  
- Digging Into Math ©2014 (Red) Unit B2 Lessons 4-9  
- Number Worlds (ERC): Level G, Unit 1 (Number Sense)  

### SUB-SKILLS:

- Use models and knowledge of factors to identify and generate equivalent fractions  
- Simplify fractions  
- Compare & order fractions w/ unlike denominators, and justify the comparison with a model  
- Convert between an improper fraction & a mixed number  
- Plot fractions on a number line  
- Add & subtract fractions (including mixed numbers) w/ like denominators  
- Estimate fraction sums & differences  
- Represent multiplication of fractions by a whole number as repeated addition.  
  List all the factors of a number

### INSTRUCTIONAL NOTES:

- Teachers need to include experiences with fractions greater than 1.  
- The 4th grade standard is **NOT** about multiplication of fractions; multiplying by a whole number asks students to connect to repeated addition.  
- Regarding 4.NF.5: Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with Unlike denominators in general is not a requirement at this grade.  
- Consider ELA Connections to Reach for Reading Unit 6: Treasure Hunters  
- Fraction and Decimal videos to share with students and parents: [https://learnzillion.com/resources/74909-4th-grade-fractions-4-nf](https://learnzillion.com/resources/74909-4th-grade-fractions-4-nf)
**Unit 7 (Fractions and Decimals)**

**STANDARDS:**
Develop understanding of equivalent fractions and compare fractions using multiple strategies (SBAC TARGET F, DOK 1, 2)
(Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

4.NF.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.

Understand and compare decimal notation (SBAC TARGET H, DOK 1, 2)

4.NF.6 Use decimal notation for fractions with denominators 10 or 100. 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.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.

**Supporting Standards:**

4.NF.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.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. (Students who can generate equivalent fractions can

**MONTH:** April – May
Pacing Recommendation: 19 days
Note: 1 day = 60 minute Core lesson (including differentiation)

**OCSD ADOPTED CURRICULUM (required):**
- Math Expressions: Common Core Unit 7 (Fractions and Decimals)
  - Big Idea 1: Comparing Fractions (Lessons 1-3)
  - Big Idea 2: Equivalent Fractions (Lessons 4-7; 6 may take 2 days)
  - Big Idea 3: Understanding Decimals (Lessons 8-13)

**Suggested Assessments:**
Develop understanding of equivalent fractions and compare fractions using multiple strategies
Unit 7 Quick Quiz 1 (Page 100 of Assessment Guide)
Unit 7 Quick Quiz 2 (Page 101 of Assessment Guide)
Unit 7 Test #1-3, 6-10, 12-13, 15-16, 22 (Pages 103-106 of Assessment Guide)
Unit 7 Activity: Bicycle Parking Only #1-2, 4 (Page 112 of Assessment Guide)

Understand and compare decimal notation
Unit 7 Quick Quiz 3 (Page 102 of Assessment Guide)
Unit 7 Test #4-5, 11, 14, 17-25 (Pages 103-106 of Assessment Guide)
Unit 7 Activity: Bicycle Parking Only #3, 4 (Page 112 of Assessment Guide)
**Standards:**
Develop understanding of equivalent fractions and compare fractions using multiple strategies
(SBAC TARGET F, DOK 1, 2)
(Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)

4.NF.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.

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<tr>
<td>• Math Expressions: Common Core Unit 7 (Fractions and Decimals)</td>
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<tr>
<td>o Big Idea 1: Comparing Fractions (Lessons 1-3)</td>
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<tr>
<td>o Big Idea 2: Equivalent Fractions (Lessons 4-7; 6 may take 2 days)</td>
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<tr>
<td>o Big Idea 3: Understanding Decimals (Lessons 8-13)</td>
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<table>
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<th>Suggested Assessments:</th>
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<tr>
<td>Develop understanding of equivalent fractions and compare fractions using multiple strategies</td>
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<tr>
<td>Unit 7 Quick Quiz 1 (Page 100 of Assessment Guide)</td>
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<td>Unit 7 Quick Quiz 2 (Page 101 of Assessment Guide)</td>
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<td>Unit 7 Test #1-3, 6-10, 12-13, 15-16, 22 (Pages 103-106 of Assessment Guide)</td>
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<td>Unit 7 Activity: Bicycle Parking Only #1-2, 4 (Page 112 of Assessment Guide)</td>
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<th>Understand and compare decimal notation</th>
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<td>Unit 7 Quick Quiz 3 (Page 102 of Assessment Guide)</td>
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<td>Unit 7 Test #4-5, 11, 14, 17-25 (Pages 103-106 of Assessment Guide)</td>
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<td>Unit 7 Activity: Bicycle Parking Only #3, 4 (Page 112 of Assessment Guide)</td>
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Unit 8 (Geometry)

Standards:
Understand angle concepts and draw and classify shapes by properties of their lines and angles (SBAC TARGET L, DOK 1, 2)

4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

4.G.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.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

- 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.

- An angle that turns through $n$ one-degree angles is said to have an angle measure of $n$ degrees.

4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Supporting Standards:

4.MD.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.G.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.

MONTH: May – June
Pacing Recommendation: 19 days

OCSD ADOPTED CURRICULUM (required):
- Math Expressions: Common Core Unit 8 (Geometry)
  - Big Idea 1: Measuring and Drawing Angles (Lessons 1-3)
  - Big Idea 2: Triangles and Angle Measurements (Lessons 4-6)
  - Big Idea 3: Analyzing Quadrilaterals (Lessons 7-9; 9 may take 2 days)
  - Big Idea 4: Analyzing Polygons (Lessons 10-12)

Suggested Assessments:
Understand angle concepts and draw and classify shapes by properties of their lines and angles

- Unit 8 Quick Quiz 1 (Page 114 of Assessment Guide)
- Unit 8 Quick Quiz 2 (Page 115 of Assessment Guide)
- Unit 8 Quick Quiz 3 (Page 116 of Assessment Guide)
- Unit 8 Quick Quiz 4 #1-3 (Page 117 of Assessment Guide)
- Unit 8 Test #3-15, 18-25 (Pages 118-121 of Assessment Guide)
- Unit 8 Activity: Crack a Secret Code (Page 127 of Assessment Guide)
**SBAC Vocabulary:**
**Target K:** protractor, angle, ray, intersect, one-degree angle, vertex, ray
**Target L:** point, ray, angle, line, line segment, parallel, perpendicular, right, obtuse, acute, sides, polygon, triangle, quadrilateral, pentagon, hexagon, octagon, right triangle, line of symmetry, greater than, less than, equal to

**Sentence Frames:**
The shape is a ___ because ___.
___ is always ___ because ___.

**SUPPLEMENTAL RESOURCES (optional):**
- Bridges Supplement (C4) – Angles
- RTI Tier 1 Book Lessons 93-97, 98-103
- RTI Tier 2/3 Book Lessons 90-111
- Math Literature Library: Grandfather Tang’s Story: A Tale Told with Tangrams
- Digging Into Math ©2014 (Red) Unit B3 Lessons 1-7
- Number Worlds (ERC): Level F, Unit 2 (Number Patterns & Relationships (Algebra))
- Angle Practice (OCSD website)
- Pie Eating Contest (OCSD website: cards and circle)
- Geometry videos to share with students and parents: [https://learnzillion.com/resources/74908-4th-grade-geometry-4-g](https://learnzillion.com/resources/74908-4th-grade-geometry-4-g)

**SUB-SKILLS:**
- Identify & draw points, lines, line segments, rays, and perpendicular and parallel lines
- Estimate angle measure based on benchmark angles.
- Use tools for measuring length
- Convert between units of measure
- Determine elapsed time

**INSTRUCTIONAL NOTES:**
- Students need concrete and visual experiences in Geometry to move to the descriptive and informal deduction levels (Pages 711Q-711R of TE).
- Students should measure angles with protractors, draw shapes, fold paper to see and create symmetry, cut out triangles and quadrilaterals to sort and measure.
- Consider NGSS connections to 4-LS1 From Molecules to Organisms: Structures and Processes and 4-PS4 Waves and their Applications in Technologies for Information Transfer
- Consider ELA Connections to Reach for Reading Unit 8: Saving a Piece of the World