PACING CHANGE

Unit 1, 2, 3, Unit 6, 7, Unit 5, Unit 4

MATH EXPRESSIONS CCSS GRADE 3- UNIT 7

Third Grade - Unit 7

Hints to Unit 7

All quizzes for unit 7 are ok.

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This unit is important to teach – but centers or concepts should be revisited OFTEN, don't spend too much time on each lesson - instead teach the lesson entirely and revisit OFTEN!!!!!

- Students only have informal ideas about partitioning, sharing, and measuring
- Students will understand fractions as numbers
  - ○ Goal develop a more formal meaning of fractions
    - ▪ Unit fractions
    - ▪ When whole divided – parts must be equal
    - ▪ Parts with equal areas are equal parts
    - ▪ Each part is a unit fraction
  - ○ **KEY TO SUCCESS**
    - ▪ **To really "get" fraction concepts you need to know _what the whole is_ and how to _determine whether the parts of a divided shape are equal parts_**
  - ○ Important to see that ½ can have different names and represented in different ways (3/6, decimals, percent's)
- Important to understand the concept of the unit or the whole
  - ○ Example – ¾ of a large pizza is not the same as ¾ of a small pizza
- Working with fractions must emphasize conceptual understanding
  - ○ Build on students intuitive understanding of fractions and use objects or context to make sense of fractional concepts
- See fractions as equal parts of a whole or a set
- Start with the idea of a unit fraction
- Then… continue with the idea that other fractions can be built from unit fractions (3/4 is the quantity of 3 of the ¼'s)
- Thinking of fractions as made up of unit fractions is key to conceptual understanding of all future work with fractions
- Explore meaning of fractions as a unit fraction as- the quantity formed by 1 part when a whole is partitioned into 1/d d=parts (fraction bars and shapes)
- n/d is formed by n equal parts of size 1/d. conceptualizing fractions as being composed of unit fractions added together is like thinking of a whole numbers as being composed of ones added together. 1+1+1=3 1/3+1/3+1/3 = 3/3
- Compare fractions (lesson 5) observe differences in patterns
- Possible TEST QUESTION your kids should be able to answer….
  - ○ Given 1/3 on number line kids need to locate ¾
  - ○ Concepts – meaning of fractions and locating fractions on number line
  - ○ Solve – locate 3/3 (or 1) THEN use distance from 0-1 to locate ¼, 2/4, ¾ on another equivalent number line (below the original number line) THEN transfer point to the original number line
- Grade 2 – kids compared lengths using a standard measurement unit – grade 3 builds on this with comparing fractions with same denominator (after understanding unit fractions)
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February 2017

2/6 Begin Unit 7

2/15 Unit 7 Quiz 1

2/16 Re-teaching day for Unit 7 Quiz 1 (Mastery Learning Loop protocols)

2/27 Unit 7 Quiz 2

2/28 Re-teaching day for Unit 7 Quiz 2 (Mastery Learning Loop protocols)

3/1 Math Practice Lesson from Unit 7

3/2 –3/3 Window of days to utilize the Mastery Learning Loop and take the Unit 7 test and Performance Task from Unit 6

	Today	< > February 2017		Day	Week	Month	5 Days	Agenda

Mon	Tue	Wed	Thu	Fri
30	31	Feb 1	2	3
UNIT 6 Testing Window - Performance Task				
6	7	8	9	10
Begin Unit 7 - PACING CHANGE L				
13	14	15	16	17
		Unit 7 Quiz 1 - Give at the END of	Reteaching Day - Small group in:	
20	21	22	23	24
27	28	Mar 1	2	3
Unit 7 Quiz 2 - Give at the END of	Reteaching Day - Small group in:	Mathematical Practice Lesson	UNIT 7 Testing Window - Performance Task	

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Some things to emphasize in teaching Grade 3 Unit 7 on fractions

In Unit 7 on fractions, the major visual supports for unit fractions are student pages 351 and 352 in Lesson 1. Be sure that students see and discuss the inverse relationship between the number of unit fractions and the size of the unit fractions: as there are more unit fractions, each unit fraction gets smaller. Fraction notation only shows the number of unit fractions, so students have to have the pictures on these pages in their heads to remember that 1/3 > ¼. Put these pages up in the room and keep emphasizing this relationship.

In Lessons 2 through 6 use page 351 as the Quick Practice instead of the simple multiplications that are in the Quick Practice now. In Lesson 2 Quick Practice say: "I am putting page 351 up where everyone can see it. Our Quick Practices will help us remember that a bigger number on the bottom means a smaller unit fraction because there are more but smaller parts."

New Quick Practice for Lessons 2 through 6:

Write 4 pairs of unit fraction on the board. Have 4 student leaders put a > or a < between a pair of unit fractions and explain why.

¼ 1/7   1/6 1/8   1/5 1/3   1/8 1/7

Example: ¼ is greater than 1/7 because there are only 4 equal parts of the whole instead of 7 smaller parts.

[Put a different 4 pairs of unit fractions in every day. Vary whether the larger is first or second

Also number lines are difficult because students look at the marks and not at the lengths and make errors. Teachers and students should loop the lengths on number line diagrams to emphasize that it is the lengths that make the unit fractions. The drawings on TE 762 show a fraction bar above a number line diagram. The shadings in the fraction bars make it easier for students to see the unit fraction lengths. Students can also slide their finger along the number line lengths to count these lengths and then read how many unit fraction lengths so far at the end of that length (1/4, 2/4, ¾, etc.).

For the two cases of comparing fractions included in Grade 3 (3.NF.3d): The numerator is the same or the denominator is the same. Have students discuss which case is easier and then summarize their conclusion: The same denominator is easier because those are the same size unit fractions, so you just look to see which fraction has more of them. When the numerators are the same, you can think of the case where you have unit fractions and remember that a larger denominator means more but smaller unit fractions. So for ¾ and 3/8 you can think ¼ and 1/8 and see that ¼ > 1/8, so ¾ > 3/8. Students will need to practice the second kind of comparison especially to overcome their strong whole number sense of knowing which number is bigger (but that means that its unit fraction is smaller).

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	Grade 3 Pacing at a Glance			
Unit	**1 day for each Lessons** Some special cases where lessons take more than one day are accounted for and are shown in the detailed pacing guide	**1 day to _reteach_ any concepts/strategies from the quiz**	**1 test per unit 2-3 days for mastery**	**Instructional Days** (Including Mastery Learning Loop)
1	19	4 days (4 quizzes)	2-3	25-26
2	15	2 days (2 quizzes)	2-3	19-20
3	15	3	2-3	20-21
4	18	3	2-3	23-24
5	11	2	2-3	15-16
6	11	2	2-3	15-16
7	9	2	2-3	13-14
Total	**98**	**18**	**14-21**	**131-138**

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Unit 7
Are you using math sense making about math structure using math drawings to support math explaining?

Big Idea 1: Fraction Concepts

Lesson	Quick Practice	Materials	Common Core Standard/**Practice**	**Words To Use**
7.1 **2 days**	Practice multiplications and divisions.	SAB: 347-352 SHC: 347-352 & AB: 207-212 (family Letter included) HR: 257-258	**MP: 2,3,5,6,7,8** CC.3.G.2, CC.3.NF.1	**Fraction, Numerator, Denominator, Unit fraction**

Lesson Focus	**Develop a conceptual understanding of unit fractions and how they are used to build other fractions.**
Formative Assessment	**Ask students to explain what unit fractions are and how they are used to build other fractions.**

I CAN...
 	
Learning Targets
	Instructional Strategies:
	Student Outcome:
	    A1: Understand unit fractions as equal parts of a whole.
	    A2: Use fraction bars to represent unit fractions as the elements for building other fractions.

Notes	Read 743Z-743BB **Common error READ 749 note and 752!! Read 751 teaching note!! Don't over teach activity 2** Use shapes to explore the meaning of a unit fraction = 1/**d** means the quantity of 1 part when a whole is made into **d** equal parts Understanding how to decompose shapes is HUGE to the foundation of fractions You are connecting geometry and number concepts in this lesson!!! (watch out for #8 rectangle/triangle mix up) – precision huge! Denominator (d = down) Numerator (u = up) Fraction bars used to really understand the concept that a unit fraction with a smaller denominator is greater than a unit fraction with a larger denominator If a student understands that n/d is the quantity formed by n equal parts of size 1/d – then they can focus on fractions as being composed of unit fractions added together the same as whole numbers as being composed of ones added together

	So don't focus on the difference between fractions as less than 1 and fractions equal to or greater then 1 Instead kids will see that they can count the number of equal parts in a fraction or they can add the unit fractions to find the value of that fraction Shading the bars in this lesson is the first step toward comparing fractions that you will do in lesson 4			
7.2	Practice multiplication and divisions.	SAB: 353-354 SHC: 353-354 & AB: 213-214 HR: 259-260 (could be included in student portfolio) rulers	**MP: 1,3,5,6,7,8** CC.3.G.2, CC.3.NF.1 CC.3.NF.2, CC.3.NF.2b	**Whole, Number line**
Lesson Focus	**Use fraction bars and umber lines to represent fractions.**			
Formative Assessment	**Ask students to use examples to explain how both fraction bars and number lines can be used to show fractions.**			
I CAN... Learning Targets	**Instructional Strategies:** **Student Outcome:** A1: Use fraction bars to represent fractions. A2: Use number lines to represent fractions less than 1. A3: Use number lines to represent fractions greater than 1.			
Notes	Read 743Z-743BB If possible try to use the digital resources for the fractions! Elicit **from kids** the importance of knowing what the whole is use a ruler to understand number line – spaces are equal spaces – a ruler is a scale is a number line – a fraction is a number so it can go on a number line Model fractions with bars and number lines Number line – because you can find them on a number line, they must be a number Key concept is to think of the interval from 0-1 as a whole AND partition the whole into as many same size parts as the denominator THEN locate a particular fraction Careful about explaining that it is not the marks BUT the DISTANCE between the marks they COUNT			
7.3	Practice multiplications and divisions.	SAB: 355-358 SHC: 355-358 & AB: 215-218 HR: 261-262	**MP: 2,3,5,6,8** CC.3.NF.2a, CC.3.NF.2b	**Locate**
Lesson Focus	**Locate fractions on the number line.**			

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Formative Assessment	**Ask students to use examples to explain how to locate fractions on the number line.**

I CAN…
 	
 Learning Targets
	Instructional Strategies:
	 Student Outcome:
	     A1: Use unit fractions to locate fractions less than 1 and fractions greater than 1 on the number line.
	     A2: Use other methods to locate fractions on the number line.

Notes	Read 743Z-743BB Precision important when drawing number lines underneath. Remember the difference between a fraction bar that shows the unit fraction in the middle and a number line has the fraction at the end of the distance. Make sure kids identify where point 1 is located on SAB number lines

7.4	Practice multiplications and divisions.	SAB: 359-360 SHC: 359-360 HR: 263-264 (student portfolio)	**MP: 3,5,6,7,8** CC.3.NF.2a, CC.3.NF.2b CC.3.NF.3d	**Parallelogram, quadrilateral, Rectangle, Rhombus, Square, Trapezoid**

Lesson Focus	**Use fraction bars and number lines to compare unit fractions.**
Formative Assessment	**Ask students to name the subcategories of quadrilaterals. Students should name parallelograms, rectangles, squares, rhombuses, and trapezoids.**
I CAN… Learning Targets	**Instructional Strategies:** **Student Outcome:** A1: Compare unit fractions using fraction bars and number lines.
Notes	Read 743CC-743DD Compare unit fractions – Using the fraction bars - all about the patterns and observing the size of the pieces Number line – all about noticing the position on the number line relates to the denominator of the fraction Math talk that says all parts of what comparing means really helps – have kids explain what compare means, what greater means Continue to reinforce fractions are numbers and can be represented a lot of ways (bars, lines, symbols)

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7.5 **2 days**	Practice multiplications and divisions.	SAB: 361A-362 SHC: 361A-362&AB: 219-220 HR: 265-266 Quick Quiz 1 Fluency Check	**MP: 2,3,5,6,8** CC.3.NF.3d	
Lesson Focus	**Use fraction circles to develop understanding of comparing fractions with the same denominator or with the same numerator.**			
Formative Assessment	**Ask students to explain how they can compare fractions that have the same denominator and how they can compare fractions that have the same numerator.**			
I CAN… Learning Targets	**Instructional Strategies:** **Student Outcome:** A1: Use fraction circles and reasoning to compare fractions.			
Notes	Read 743CC-743DD Compare non unit fractions – fraction circles – use reasoning about size– emphasizing that in order to compare fractions the wholes must be same size			

Quick Quiz 1 – 1 Day for reteaching

Give quiz after teaching lesson 5 – then take this day to reteach/enrich per each quiz item.

This quiz will allow you to see if initial learning took place. If it did not the extra day is spent to spend more time with only those students that need help on the specific items on the quiz, in order to be more successful for the next Big Idea. If kids are doing well, take the time to enrich using the Differentiated Cards, or other higher order thinking activities. This time spent on re-teaching or enrichment will allow for you to keep on pace with not over teaching to only a select few that may need help, it also allows for the enrichment for students who need more of a challenge to go deeper with their understanding. Designated stopping at critical times helps eliminate unorganized re-teaching times during a lesson/activity.

Found on OAISD Math Resources K-5 or Think Central

Fluency Check

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Big Idea 2: Equivalent Fractions

7.6	Practice multiplications and divisions.	SAB: 363A-364 SHC: 363A-364 &AB:221-222 HR: 267-268 Envelopes, fraction tiles, fraction strips	**MP: 2,3,5,6,7,8** CC.3.NF.3a, CC.3.NF.3b	**Equivalent fractions, Denominator, Numerator, Equivalence chain**
Lesson Focus	**Develop understanding of equivalent fractions.**			
Formative Assessment	**Ask students how using fraction strips can help them to find equivalent fractions. Students should explain that fraction strips show that two fractions with different numerators and denominators can name the same amount.**			
I CAN… Learning Targets	**Instructional Strategies:** **Student Outcome:** A1: Use fraction strips to find equivalent fractions.			
Notes	Read 743EE Folding papers strips that represent 1 emphasizes that only fractions with same size whole can be compared – this builds to equivalent fractions (if you have fraction tiles, these are great to use) Number lines – same outcome as using strips, and reinforces that fractions are numbers Equivalent fractions – kids only start the understanding in grade 3 – kids should discover that many fractions label the same point on a number line – therefore they are equal…			
7.7 **2 days**	Review comparing fractions.	SAB: : 365-366 SHC: : 365-366 & AB:223 HR: 269-270	**MP: 2,3,6,8** CC.3.NF.3a, CC.3.NF.3b	**Equivalent, Equivalence chain**
Lesson Focus	**Find two or more equivalent fractions using number lines.**			

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Formative Assessment	**Ask students to use examples to explain how to use number lines to find equivalent fractions.**
I CAN… Learning Targets	**Instructional Strategies:** **Student Outcome:** A1: Use number lines to find equivalent fractions.
Notes	Read 743EE Have kids make a number line for each fraction – then combine all the fractions onto one line. Make sure kids have same size lines each time – if trouble drawing – have lines drawn for the kids ahead of time or use line paper.

7.8	Review comparing fractions.	SAB: 367-368 SHC: 367-368 HR: 271-272(could be included in student portfolio)	**MP: 1,2,3,4,6** CC.3.NF.2a, CC.3.NF.2b CC.3.NF.3a, CC.3.NF.3b CC.3.NF.3c, CC.3.NF.3d	

Lesson Focus	**Use fraction concepts to solve real world problems.**
Formative Assessment	**Ask students to explain how they can use their understanding of unit fractions, comparing fractions, and equivalent fractions to solve word problems. Students should include the following points in their explanation: unit fractions are equal parts of the fraction and you can put them together to make other fractions; when comparing fractions with the same denominators, the one with the greater numerator is the greater fraction; when comparing fractions with the same numerators, the one with the greater denominator is the lesser fraction; and equivalent fractions are fractions that represent the same part of the whole.**
I CAN… Learning Targets	**Instructional Strategies:** **Student Outcome:** A1: Use understanding of fraction concepts to solve real world problems.
Notes	Read 743FF

Fluency Check

Quick Quiz 2 (found at the end of lesson 9) – 1 Day for reteaching				
Give quiz after teaching lesson 8 – then take this day to reteach/enrich per each quiz item.				
Found on OAISD Math Resources K-5 or Think Cental				
7.9	Optional: Quick Practice provided in Lesson 1 Practice multiplications and divisions.	SAB: 369-370 SHC: 369-370 HR: 273-274 (could be included in student portfolio) Quick Quiz 2 but give after lesson 8	**MP: 1,2,3,4,5,6,7,8** CC.3.NF.1, CC.3.NF.3a CC.3.NF.3b, CC.3.NF.3d CC.3.G.2	
Lesson Focus	**Use the Common Core Content Standards and Practices in a variety of real world problem solving situations.**			
Formative Assessment	**n/a**			
I CAN… Learning Targets	**Instructional Strategies:** **Student Outcome:** A1: 1. Makes sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 4. Model with mathematics. 5. Use appropriate tools strategically. A2: 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. A3: 3. Construct a viable argument and critique the reasoning of others. 6. Attend to precision.			
Notes	Read 743FF			

Unit 7

Balanced Assessment Resources and Protocols

The balanced assessment is made up of 2 components: the current unit content (Unit test) and prior content at a varying depth of knowledge (Performance Task).

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Unit 7 Test and Review

Give All Students the Review Test A as a Pre-test at the END of the unit – then 2-3 days to reteach/enrich each test item

Post-Test students that were identified as needing re-teaching to the specific test items to demonstrate proficiency

This test will allow you to see if after initial learning took place, the student was able to retain the information. If it did not the extra day(s) is spent to allow for more time with only those students that need help on the specific items on the test, in order to be more successful for the next Unit. If kids are doing well, take the time to enrich using the Differentiated Cards, or other higher order thinking activities. This time spent on re-teaching or enrichment will allow for you to keep on pace with not over teaching to only a select few that may need help, it also allows for the enrichment for students who need more of a challenge to go deeper with their understanding. Designated stopping at critical times helps eliminate unorganized re-teaching times during a lesson/activity.

Performance Task

Use the **Unit 5 Performance Task** to incorporate the balanced assessment review of a higher depth of knowledge to check students understanding of the application of the prior unit's concepts and strategies.

This performance task might be taught as a whole group, small group or in pairs. The requirements of taking a task might still be new to students so you may want to take one day to both review the rubrics and strategies to thoroughly answer all parts of the task. The role of the teacher to facilitate the Math Talk will be a critical piece to having the students take ownership of their learning and ability to complete the Performance Task.

Found on OAISD Math Resources K-5 (Balanced Assessment Resources)

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Grade 4 RtI Standards **Readiness Standards - found in Grade 3 Units- Essential for Grade 4**	
Grade 3 CCSS MX Teacher Edition	
Add 3 digit numbers 3.NBT.2a	Unit 4 Lesson 1 Activity 1&2 Place Value drawings Unit 4 Lesson 2 Activity 1&2 secret code cards Unit 4 Lesson 5 Activity 1 rounding Unit 4 Lesson 7 Activity 1&2 methods Unit 4 Lesson 9 Activity 1 grouping
Subtract 3-digit numbers 3.NBT.2b	Unit 4 Lesson 11 Activity 1 methods Unit 4 Lesson 12 Activity 1,2&3 zeros Unit 4 Lesson 13 Activity 1 methods Unit 4 Lesson 14 Activity 1 diagrams
Multiply numbers from 0-10 3.OA.7a	Unit 1 Lesson 1 and 2 All Activities Unit 1 Lesson 3 Activities 3&4 area model Unit 1 Lesson 11 Activity 1&2 methods Unit 1 Lesson 15 Activity 4 associative property Unit 2 Lesson 1 Activity 1&2 Strategies for 6s Unit 2 Lesson 3 Activity 3 Strategies for 8s Unit 2 Lesson 5 Activity 2 Strategies for 7s
Multiplication and Division Games	Unit 1 Lesson 17 Activity 2 Unit 2 Lesson 7 Activity 2
Divide numbers by 1 to 10 3.OA.7b	Unit 1 Lesson 4 Activity 2&3 Unit 1 Lesson 11 Activity 2 strategy cards Unit 1 Lesson 15 Activity 4 division rules
Identify fractions and their parts. 3.NF.1	Unit 7 Lesson 1 Activity 1&2 Unit 7 Lesson 2 All
Identify fractions on a number line. 3.NF.2	Unit 7 Lesson 2 Activity 1 bars, Activity 2&3 lines Unit 7 Lesson 3 Activity 1&2 locate on lines
Compare fractions with the same numerator or same denominator. 3.NF.3d	Unit 7 Lesson 4 & 5 All Unit 7 Lesson 6 & 7 All equivalence

Grade 3 Additional Fraction Daily Routines

Below are some possible <u>DAILY ROUTINES</u> that you might choose to do <u>AFTER TEACHING</u> <u>UNIT 7</u>.
Please note a Daily Routine is used AFTER the concepts have been taught. Research shows that it takes practice to master a concept. Children will learn best if curriculum concepts connect with what they already know and have experienced, while introducing them to important new ideas and skills (Hyson 2000, 61).
The intended use of the short routines and sample questions are for 1-6 minutes of student led exposure _as needed_.

Anu needs to cut a piece of paper into 6 equal parts. Draw at least 3 pictures to show how Anu can cut her paper so that all the parts are equal. (Early finishers can do the same thing with halves, fourths, or eighths.)

1. Circle the model that correctly shows 1 third shaded.

2.
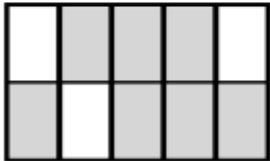
There are _____ equal parts in all. _____ are shaded.

1. Circle the strips that are cut into equal parts.
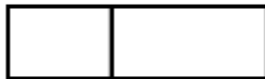
2.

a. There are _____ equal parts in all. _____ is shaded.

b. There are _____ equal parts in all. _____ is shaded.

c. There are _____ equal parts in all. _____ is shaded.

d. There are _____ equal parts in all. _____ are shaded.

3. Dylan plans to eat 1 fifth of his candy bar. His 4 friends want him to share the rest equally. Show how Dylan and his friends can each get an equal share of the candy bar.

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4. Nasir baked a pie and cut it in fourths. He then cut each piece in half.

    a. What fraction of the original pie does each piece represent?

    b. Nasir ate 1 piece of pie on Tuesday and 2 pieces on Wednesday. What fraction of the original pie was not eaten?

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Marcos has a 1-liter jar of milk to share with his mother, father, and sister. Draw a picture to show how Marcos must share the milk so that everyone gets the same amount. What fraction of the milk does each person get?

Note: This problem reviews partitioning a whole into equal parts, as well as naming fractional parts of a whole.
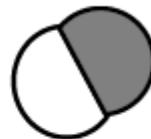

Each person gets 1 fourth of the milk.
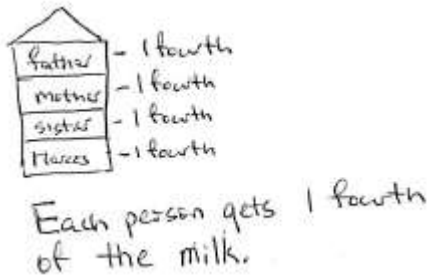
1. Each shape is a whole divided into equal parts. Name the fractional unit, and then count and tell how many of those units are shaded. The first one is done for you.
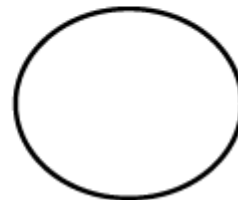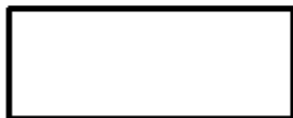
<u>   Fourths   </u>

<u>2 fourths are shaded.</u>

2. Circle the shapes that are divided into equal parts. Write a sentence telling what *equal parts* means.

_____

_____
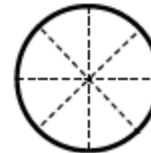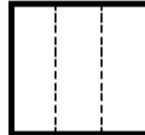
3. Each shape is 1 whole. Estimate to divide each into 4 equal parts. Name the fractional unit below.
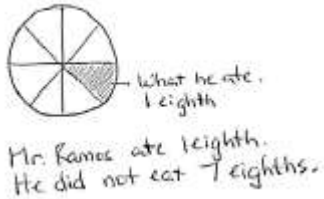
Fractional unit: _____

Mr. Ramos sliced an orange into 8 equal pieces. He ate 1 slice. Draw a picture to represent the 8 slices of an orange. Shade in the slice Mr. Ramos ate. What fraction of the orange did Mr. Ramos eat? What fraction did he not eat?

What he ate.
1 eighth

Mr. Ramos ate 1 eighth.
He did not eat 7 eighths.

More Fraction Practice – see document **Optional Fraction Daily Routines**