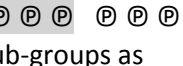


NJDOE MODEL CURRICULUM

| | | | |
|---------------------------|-----------------|------------------|--|
| CONTENT AREA: Math | GRADE: 3 | UNIT: # 4 | UNIT NAME: Build Equivalent Fractions, Compare Fractions and Apply to Measurement Qualities |
|---------------------------|-----------------|------------------|--|

| STUDENT LEARNING OBJECTIVES | | CORRESPONDING CCSS | |
|-----------------------------|---|--------------------|--|
| 1 | Locate equivalent (equal) fractions on a number line (with dominators 2, 3, 4, 6, 8). | 3.NF.3a | Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. |
| 2 | Generate and explain equivalent fractions using visual fraction models, e.g., interpret $1/4$ of a group of 12 pennies as 3 pennies:  (see the 4 equal sub-groups as fourths). | 3.NF.3b | Recognize and generate simple equivalent fractions, e.g. , $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g. , by using a visual fraction model. |
| 3 | Generate and explain whole numbers as fractions, and locate them as fractions on a number line. | 3.NF.3c | Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. |
| 4 | Compare two fractions with the same numerator or the same denominator using the symbols $>$, $=$, $<$. | 3.NF.3d | Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, $<$, and justify the conclusions, e.g. , by using a visual fraction model. |
| 5 | Find the area of a plane figure understanding that unit squares are used to measure area of a rectilinear drawing. | 3.MD.5a,b | Recognize area as an attribute of plane figures and understand concepts of area measurement. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area. A plane figure can be covered without gaps or overlaps by n squares is said to have an area of n square units. |
| 6 | Fluently multiply and divide within 50, using the relationship between multiplication and division. | 3.OA.7 | Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. , knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. |

Major Content **Supporting Content** **Additional Content** (Identified by PARCC Model Content Frameworks). **Bold type indicates grade level fluency requirements.** (Identified by PARCC Model Content Frameworks).

Selected Opportunities for Connection to Mathematical Practices

1. Make sense of problems and persevere in solving them.

SLO #3 Analyze the relationship between whole numbers and whole numbers as fractions.

SLO #4 Analyze the relationship among two fractions with the same numerator or denominator in order to compare them.

SLO #5 Understand and make sense of quantities and their relationship to the area of a plane figure.

2. Reason abstractly and quantitatively.

SLO #2 Understand and make sense of fraction quantities in order to use and interpret visual fraction models.

SLO #3 Understand and make sense of whole numbers as fractions and the quantities they represent in order to place them on a number line.

SLO # 4 Understand and make sense of fraction quantities with either the same denominator or numerator in order to compare them.

3. Construct viable arguments and critique the reasoning of others.

SLO #3 Justify and explain conclusions regarding whole numbers as fractions and where they are located on the number line.

4. Model with mathematics.

5. Use appropriate tools strategically.

SLO #1 Consider and use appropriate tools, such as drawings and the number line, when solving problems involving fractions equivalents and the number line.

SLO #2 Consider and use appropriate tools, such as visual models, diagrams, and drawings, when solving problems involving visual fraction models and equivalent fractions.

SLO #3 Consider and use appropriate tools, such as drawings and the number line, when generating and locating whole numbers as fraction on the number line.

6. Attend to precision.

SLO #2 Communicate and explain precisely equivalent fractions using visual fraction models.

SLO #4 State and understand the meaning of the symbols $<$, $>$, $=$ symbols when comparing two fractions.

7. Look for and make use of structure.

SLO #6 Look for and discern patterns between multiplication and division.

8. Look for and express regularity in repeated reasoning.

Bold type identifies possible starting points for connections to the SLOs in this unit.

Greater Brunswick Charter School Curriculum

| Grade level: 3 | | Subject: Math | | | Unit #: 3 | | |
|----------------|------------------------------------|---------------|--|---|---|--|---|
| Day | Topic | SLO | Learning Objectives | Essential Questions | Suggested Student Activities | | Possible Resources |
| | | | | | Whole Group | Small Group / Stations | |
| 1 | Area | 5 | To identify the measure of space inside a figure as the area. To determine how many lines to draw to make a specified number of columns and rows. | <i>How can I see the area of a rectangular figure by drawing columns and rows inside of it?</i> | <i>Note that students often confuse perimeter and area. There is value in discussing area here as an application of multiplication without involving discussion of perimeter.</i> | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | My Math 13.5 p.779-784 KhanAcademy IllustrativeMath |
| 2 | Area of rectangles | 5 | To calculate the area of a rectangle | <i>How can I figure the area of a rectangle without having to draw all of those squares?</i> | <i>Make sure students understand the corner boxes in the rectangles don't represent the size of the boxes that could be drawn, they are only showing the figure has square corners.</i> | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | My Math 13.6 p.785-790 KhanAcademy LearnZillion may be helpful for some, maybe not. |
| 3 | Fluent multiplication up to 50 | 6 | To practice mental math multiplying numbers to a product of 50 | <i>How fast can I mentally multiply numbers with answers up to 50?</i> | <i>Help students discover that counting all the squares always matches the multiplication algorithm.</i> | <ul style="list-style-type: none"> Independent Practice Intervention/Enrichment as needed for strugglers i-Ready | MathWorksheets STWorksheets gives a peek into simple composite figures |
| 4 | Finding the area of two rectangles | 5 | To divide a rectangle into two areas and find the resulting total area demonstrating the Distributive Property | <i>How can I divide one side of a rectangle into two parts to help me multiply using smaller numbers?</i> | <i>More than anything else, this sets the stage for finding the area of composite figures, coming next.</i> | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | My Math 13.7 p. 791-796 HomeSchoolMath gives more gridded rectangles |

| Grade level: 3 | | Subject: Math | | | Unit #: 3 | | |
|----------------|---------------------------------------|---------------|--|---|---|---|---|
| Day | Topic | SLO | Learning Objectives | Essential Questions | Suggested Student Activities | | Possible Resources |
| | | | | | Whole Group | Small Group / Stations | |
| 5 | Finding the area of two rectangles | 5 | To divide a rectangle into two areas and find the resulting total area demonstrating the Distributive Property | <i>How can I divide one side of a rectangle into two parts to help me multiply using smaller numbers?</i> | <i>This can be a difficult topic for some students because it doesn't appear to have a reason for doing it. But, with area being an important application of math, it is a good visual understanding of the Distributive Property and why it works.</i> | <ul style="list-style-type: none"> Independent Practice Intervention as needed for strugglers Enrichment for those who got it already i-Ready | My Math 13.7 p.791-796 MathWorksheets has simple rectangles HomeSchoolMath gives more gridded rectangles MathSalamander has rectangles for breaking apart without the grid |
| 5 | Area of composite figures | 5 | To divide a composite figure into its component rectangles and compute the total area. | <i>How can I divide a figure into smaller rectangles and add them together to get the total area?</i> | <i>Spend some time just dividing the figures into the component rectangles. Some students have trouble seeing them.</i> | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | My Math 13.8 p.797-802 Mathworksheets gives another easy look at composite rectangles YouTube until the 9:00 mark. YouTube does a nice job of laying out the thought process after the first minute. |
| 6 | Fluent multiplication up to 50 | 6 | To practice mental math multiplying numbers to a product of 50 | <i>How fast can I mentally multiply numbers with answers up to 50?</i> | <i>Extra time on this never hurts. It's a big item on the assessment.</i> | <ul style="list-style-type: none"> Independent Practice Intervention as needed for strugglers Enrichment for those who got it already i-Ready | My Math 13.8 p.797-802 MathinEnglish has good shapes but includes perimeter ☹️ MHSchoolmath has lesson and more practice from their text |
| 7 | Area | 5 | To determine need for additional support | <i>How much do I know about finding area?</i> | | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | My Math Review p.818 #13-19, 21,22 |
| 8 | Area Multiplying mentally up to 50 | | Assessment | | | <ul style="list-style-type: none"> Review Assessment | |

| Grade level: 3 | | Subject: Math | | | Unit #: 3 | | |
|--|---|---------------|---|---|---|--|---|
| Day | Topic | SLO | Learning Objectives | Essential Questions | Suggested Student Activities | | Possible Resources |
| | | | | | Whole Group | Small Group / Stations | |
| <p>The remainder of this unit is basically a review, with small extensions, of the work in Unit 3 on fractions. Your text does not have additional pages dedicated to these topics beyond those used during Unit 3. In the days ahead, each SLO is addressed. You are welcomed to repeat the use of any pages in the text to undertake the review. Included below are web-based resources that may be useful for the continued study and ongoing practice with fractions. This is an excellent opportunity to try to end the cycle of students not understanding fractions very well by providing additional time, conversation, and practice focusing on areas in which each student displays a deficiency. A place at which to begin in identifying those deficiencies would be the Unit 3 Assessment.</p> | | | | | | | |
| 10 | Equivalent fractions on a number line | 1 | To place fractions on a number line and see there are different ways to represent the same fraction, the same number. | <i>How do I know two fractions with different denominators are the same number?</i> | <p>Since students have already been introduced to this content, an effective use of a video could be to pause it at points and ask students to predict what is going to be said next.</p> | <ul style="list-style-type: none"> • Independent Practice • Intervention/Enrichment as needed for strugglers • i-Ready | Khan basic lesson plotting fractions on a number line KhanAcademy lesson Use sample problems on Khan site further down the left side menu. Additional worksheets for this unit |
| 11 | Comparing equivalent and nonequal fractions visually and on a number line | 1 | To place fractions on a number line to see if they are equal or not. | <i>How can a number line tell me which fraction is larger?</i> | | <ul style="list-style-type: none"> • Lesson & Guided Practice • Independent Practice • Intervention/Enrichment • i-Ready | KhanAcademy lesson Use sample problems on Khan site further down the left side menu. Illuminations lesson plan Alabama lesson plan Additional worksheets for this unit |
| 12 | Generating equivalent fractions | 2 | To make equivalent fractions with different denominators. | | | <ul style="list-style-type: none"> • Lesson & Guided Practice • Independent Practice • Intervention/Enrichment • i-Ready | KhanAcademy lesson Use sample problems on Khan site further down the left side menu. Additional Khan Academy series on making equivalent fractions begins with this one and continues down the left side menu Additional worksheets for this unit HomeSchoolMathsheet |

Grade level: 3

Subject: Math

Unit #: 3

| Day | Topic | SLO | Learning Objectives | Essential Questions | Suggested Student Activities | | Possible Resources |
|-----|--|-----|--|--|------------------------------|--|---|
| | | | | | Whole Group | Small Group / Stations | |
| 13 | Identify the number of items that make up a fraction of a whole group of items | 2 | To identify the number of items it takes to make $\frac{1}{3}$ or $\frac{1}{2}$ or $\frac{3}{8}$ or $\frac{6}{10}$, etc. of a group of items. | <i>How can I know how many items I need to make $\frac{1}{2}$ of a total?</i> | | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | Additional worksheets for this unit Cute interactive video for strugglers |
| 14 | Identify a fractional part of a whole | 2 | | | | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | Additional worksheets for this unit |
| 15 | Comparing fractions | 4 | | | | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | KhanAcademy lesson Clarification of the whole Use sample problems on Khan site further down the left side menu. Additional worksheets for this unit |
| 16 | Comparing fractions of different wholes | 4 | To recognize the importance of the size of the whole to determine which fraction of each is larger. | <i>How does the size of the whole make a difference about which fraction is more?</i> | | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | KhanAcademy lesson Use sample problems on Khan site further down the left side menu. Additional worksheets for this unit |
| 16 | | 4 | | | | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | |

| Grade level: 3 | | Subject: Math | | | Unit #: 3 | | |
|-----------------------------|-------------------------------------|-------------------------|---|---|--|--|---|
| Day | Topic | SLO | Learning Objectives | Essential Questions | Suggested Student Activities | | Possible Resources |
| | | | | | Whole Group | Small Group / Stations | |
| 17 | Describe whole numbers as fractions | 3 | To write whole numbers as fractions with a denominator useful to solving a problem. | <i>How can I write whole numbers as a fractions?</i> | The Khan guy uses the term "one first". Don't let your students do that. To help voice the fraction, it is better to call them "one oneths." Although it will never be used in company, it is better for helping to make the concept more consistent in terminology. | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment i-Ready | KhanAcademy lesson Use sample problems on Khan site further down the left side menu. Learnzillion lesson Sophia lesson A bunch of more lessons KhanAcademy extension point |
| 18 | | | | | | <ul style="list-style-type: none"> Lesson & Guided Practice Independent Practice Intervention/Enrichment as appropriate for strugglers i-Ready | |
| 19 | Review | 1, 2, 3, 4 | To determine mastery of fraction concepts | <i>How much do I know about fractions and parts of a whole?</i> | | <ul style="list-style-type: none"> Independent Practice Intervention/Enrichment as needed for strugglers i-Ready | |
| 20 | Assessment | | | | | <ul style="list-style-type: none"> Review Assessment | |
| <u>Word Wall Candidates</u> | | | | | | | |
| Area | | Unit square | | Square units | | Composite figure | |
| Fraction Division | | Denominator Equal parts | | Numerator Parts selected | | Unit Fraction Single (one) part | |
| | | | | | | Formula | |
| | | | | | | Equivalent Fractions Equal Fractions | |

| Grade level: | | 3 | | Subject: | | Math | | Unit #: | | 3 | |
|---------------------|-------|----------|---------------------|---------------------|------------------------------|------------------------|--------------------|----------------|--|----------|--|
| Day | Topic | SLO | Learning Objectives | Essential Questions | Suggested Student Activities | | Possible Resources | | | | |
| | | | | | Whole Group | Small Group / Stations | | | | | |

Authentic Application

Your Goal: To determine how much carpet is needed to carpet a room in the school

Your Role: Planner and teammate

Your Audience: The principal

The Situation: You are part of a design team given the task to carpet one room in your school. Will it be the lunchroom? An office? The teacher's lounge? The workroom? The computer lab? Your classroom?

You have been chosen to work with a design team (classmates) to carpet one room in your school. How much is it going to cost the school to carpet the entire room?

Decide on the room, the carpet you are going to use, and the price for the amount of carpet you need. Don't buy too much carpet! You will need to calculate the area of the floor you are going to cover to determine the amount of carpet you will need and finally to determine the price of those materials

You will need to figure out the area of the floor. Make sure you use math and graphics/diagrams to show your work and to justify the price of the carpet project.

Finally, your design team will have the opportunity to share the findings with the class.

Your Product: Draw up a sketch of each wall and the floor and label what you will need. It may be wise for each person to head up the drawing of an area. Consult your team if help is needed. Work together to determine the amount of materials you are going to need and the cost for the materials. Finally, determine how you are going to share your findings with the class. Work together on your final presentation. Schedule a time with your teacher to do your presentation.

