|  |  |  |
| --- | --- | --- |
| **Prerequisite Skills**  **(Grade 2)** | **Unit Four Standards**  **Grade 3** | **Looking Ahead**  **(Grade 4)** |
| Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. | Number and Operations Fractions 1: Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.   * I can identify numerators. * I can identify denominators. * I can model fractional parts must be equal size. * I can show a fraction as a part of a whole or part of a group with a model. | Extend understanding of fraction equivalence and ordering. |
| Number and Operations Fractions 2: Understand a fraction as a number on the number line; represent fractions on a number line diagram.  a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.  b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.   * I can represent a fraction on a number line when 1 is the numerator (a). * I can represent a fraction on a number line when the numerator is more than 1 (a). * I can identify a fraction on a number line (b). * I can identify a fractional part on a number line (b). | 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.  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. |
| Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. | Number and Operations Fractions 3: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.  a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.   * I can recognize when two fractions are equivalent when they are the same size or the same point on a number line.   b. 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.   * I can recognize simple equivalent fractions.   c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*   * I can express whole numbers as fractions. * I can recognize fractions that are equivalent to whole numbers. * I can explain why fractions are equivalent.   d. 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>, =, or <, and justify the conclusions, e.g., by using a visual fraction model.   * I can compare two fractions with the same numerator. * I can compare two fractions with the same denominator. * I can recognize that to correctly compare two fractions they must have the same whole. * I can compare fractions using >, <, or =. |

|  |  |  |
| --- | --- | --- |
| **Prerequisite Skills**  **(Grade 2)** | **Unit Four Standards (Continued)**  **Grade 3** | **Looking Ahead**  **(Grade 4)** |
| Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape. | Geometry 2: Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*   * I can partition (divide) a shape into parts with equal area. * I can express (write) the area of each equal part as a unit fraction of the whole shape. | 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. |
| Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. | Measurement and Data 4:  Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.   * I can generate measurement data by measuring lengths using rulers marked with halves of an inch. * I can generate measurement data by measuring lengths using rulers marked with fourths of an inch. * I can create a line plot that represents gathered measurement data in appropriate units. (whole numbers, halves, quarters). | 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. |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Number and Operations Fractions 1:  Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*. | * I can identify numerators. * I can identify denominators. * I can model fractional parts must be equal size. * I can show a fraction as a part of a whole or part of a group with a model. |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | | | | | This standard refers to the sharing of a whole being partitioned or split. Fraction models in third grade include area (parts of a whole) models (circles, rectangles, squares) and number lines. **Set models (parts of a group) are not explored in Third Grade**. Students should focus on the concept that a fraction is made up (composed) of many pieces of a unit fraction, which has a numerator of 1.  For example, the fraction 3/5 is composed of 3 pieces that each have a size of 1/5.  Some important concepts related to developing understanding of fractions include:   * Understand fractional parts must be equal-sized * Example Non-example   + The number of equal parts tell how many make a whole.   + As the number of equal pieces in the whole increases, the size of the fractional pieces decreases. * The size of the fractional part is relative to the whole. * The number of children in one-half of a classroom is different than the number of children in onehalf of a school. (the whole in each set is different therefore the half in each set will be different)   + When a whole is cut into equal parts, the denominator represents the number of equal parts.   + The numerator of a fraction is the count of the number of equal parts. * ¾ means that there are 3 one-fourths. * Students can count one fourth, two fourths, three fourths.   Students express fractions as ―fair sharing‖, parts of a whole, and parts of a set. They use various contexts (candy bars, fruit, and cakes) and a variety of models (circles, squares, rectangles, fraction bars, and number lines) to develop understanding of fractions and represent fractions. Students need many opportunities to solve word problems that require fair sharing. | | | | | | | **Examples:** | | | | | | | Four children share six brownies so that each child receives a fair share. How many brownies will each child receive? | Six children share four brownies so that each child receives a fair share. What portion of each brownie will each child receive? | What fraction of the rectangle is shaded? How might you draw the rectangle in another way but with the same fraction shaded? |  | What fraction does the letter a represent? (Linear Model) Explain your thinking. |  |  |  |  |  | | --- | --- | --- | | **Lessons and Resources for Number and Operations in Fractions 1** | | | | Expressions: Unit 11 – Lesson 1 Activities 1 – 3 (Page 782) | Expressions: Unit 11 – Lesson 18 Activity 2 (Page 916) | Expressions: Unit 11 – 11-2 Activity Cards (On Level, Intervention) (Page 795) | | [Correct Shares](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Correct%20Shares%20(1).docx) | [Sharing Tasks](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/sharing_tasks.docx) | [Finding Fair Shares](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Finding%20Fair%20Shares.docx) | | [Fractional Part Counting](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Fractional%20Parts%20Counting%20(1).docx) | [More, Less, Equal to One Whole](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/More,%20Less%20or%20Equal%20to%20One.docx) |  |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them3.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure.html) | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Number and Operations Fractions 2:  Understand a fraction as a number on the number line; represent fractions on a number line diagram.  a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.  b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line. | * I can represent a fraction on a number line when 1 is the numerator (a). * I can represent a fraction on a number line when the numerator is more than 1 (a). * I can identify a fraction on a number line (b). * I can identify a fractional part on a number line (b). |  |  |  | | --- | --- | | **What does this standard mean the students will know and be able to do?** | | | The number line diagram is the first time students work with a number line for numbers that are between whole numbers (e.g., that ½ is between 0 and 1). In the number line diagram below, the space between 0 and 1 is divided (partitioned) into 4 equal regions.  The distance from 0 to the first segment is 1 of the 4 segments from 0 to 1 or ¼. Similarly, the distance from 0 to the third segment is 3 segments that are each one-fourth long. Therefore, the distance of 3 segments from 0 is the fraction ¾.    Students transfer their understanding of parts of a whole to partition a number line into equal parts. There are two new concepts addressed in this standard which students should have time to develop. | | | **1. On a number line from 0 to 1, students can partition (divide) it into equal parts and recognize that each segmented part represents the same length.** | **2. Students label each fractional part based on how far it is from zero to the endpoint.** | |  |  |  |  |  |  |  | | --- | --- | --- | --- | | **Lessons and Resources for Number and Operations Fractions 2** | | | | | [Fractions on a Double Number Line](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Fractions%20on%20a%20Double%20Number%20Line.pdf) | [The Broken Ruler part 1](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Broken%20Ruler%20Part%20One.pdf) | [The Broken Ruler part 2](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Broken%20Ruler%20Part%20Two.pdf) | [Double Number Line](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Double%20Number%20Line.pdf) |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them3.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics3.html) | [7. Look for and make use of structure.](http://elementarymath.dmschools.org/7-look-for-and-make-use-of-structure.html) | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | **Standard** | **Learner Objectives** | | Number and Operations Fractions 3:  Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.  a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. | * I can recognize when two fractions are equivalent when they are the same size or the same point on a number line. | | b. 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. | * I can recognize simple equivalent fractions | | c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* | * I can recognize fractions that are equivalent to whole numbers. * I can explain why fractions are equivalent. * I can express whole numbers as fractions | | d. 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>, =, or <, and justify the conclusions, e.g., by using a visual fraction model. | * I can compare two fractions with the same numerator. * I can compare two fractions with the same denominator. * I can recognize that to correctly compare two fractions they must have the same whole. * I can compare fractions using >, <, or =. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | An important concept when comparing fractions is to look at the size of the parts and the number of the parts. For example, 1/8 is smaller than ½ because when 1 whole is cut into 8 pieces, the pieces are much smaller than when 1 whole is cut into 2 pieces.  3a and 3b call for students to use visual fraction models (area models) and number lines to explore the idea of equivalent fractions. Students should only explore equivalent fractions using models, rather than using algorithms or procedures. This standard includes writing whole numbers as fractions. The concept relates to fractions as division problems, where the fraction 3/1 is 3 wholes divided into one group. Students must understand the meaning of a 1.  Experiences should encourage students to reason about the size of pieces, the fact that 1/3 of a cake is larger than ¼ of the same cake. Since the same cake (the whole) is split into equal pieces, thirds are larger than fourths.  In this standard, students should also reason that comparisons are only valid if the wholes are identical. For example, ½ of a large pizza is a different amount than ½ of a small pizza. Students should be given opportunities to discuss and reason about which ½ is larger. An important concept when comparing fractions is to look at the size of the parts and the number of the parts.  Students recognize when examining fractions with common denominators, the wholes have been divided into the same number of equal parts. So the fraction with the larger numerator has the larger number of equal parts. Ex. 2/6 < 5/6  To compare fractions that have the same numerator but different denominators, students understand that each fraction has the same number of equal parts but the size of the parts are different. They can infer that the same number of smaller pieces is less than the same number of bigger pieces. Ex. 3/8 < 3/5 | | **Example:** | | If 6 brownies are shared between 2 people, how many brownies would each person get? |  |  |  |  |  | | --- | --- | --- | --- | | **Lessons and Resources for Number and Operations Fractions 3** | | | | | Expressions: Unit 11 – Lesson 9, Activities 1 – 2 (Page 842) | Expressions: Unit 11 – Lesson 10, Activity 1 (Page 850) | Expressions: Unit 11 – 11-9 Activity Cards (all) (Page 847) | Expressions: Unit 11 – 11-10 Activity Cards (Intervention, On Level) (Page 853) | | [Different Fillers](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Different%20Fillers.docx) | [Choose, Explain, Test](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Choose,%20Explain,%20Test.docx)  [With Same Denominator](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Choose,%20Explain,%20Test.docx) | [Fun With Fractions: Investigating Equivalent Fractions](http://illuminations.nctm.org/LessonDetail.aspx?ID=L543) | [Compare Fractions Practice](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Compare%20Fractions%20Practice.pdf) | | [Equivalent Fractions](http://illuminations.nctm.org/ActivityDetail.aspx?ID=80) | [Match Me](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Match%20Me.pdf) | [To What are You Equal](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/To%20What%20Are%20You%20Equal.pdf) | [The Larger Fraction](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/The%20Larger%20Fraction.pdf) | | [Recognize and Compare Fractions](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Recognize%20and%20Compare%20Fractions.pdf) |  |  |  |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them3.html) | [2. Reason abstractly and quantitatively.](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively3.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics3.html) | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | **Standard** | **Learner Objective** | | Geometry 2:  Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.* | * I can partition (divide) a shape into parts with equal area. * I can express (write) the area of each equal part as a unit fraction of the whole shape. |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | This standard builds on student’s work with fractions and area. Students are responsible for partitioning shapes into halves, thirds, fourths, sixths and eighths.  Given a shape, students partition it into equal parts, recognizing that these parts all have the same area. They identify the fractional name of each part and are able to partition a shape into parts with equal areas in several different ways. | | **Example:**  **This figure was partitioned/divided into four equal parts. Each part is ¼ of the total area of the figure.** | |  |  |  |  | | --- | --- | | **Lessons and Resources for Geometry 2** | | | Expressions: Unit 11, 11-1 Activity Card (All) (Page 789) | [Fraction Review](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Fraction%20Review.pdf) |  |  |  |  | | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | [2. Reason abstractly and quantitatively.](http://elementarymath.dmschools.org/2-reason-abstractly-and-quantitatively3.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics3.html) | [5. Use appropriate tools strategically.](http://elementarymath.dmschools.org/5-use-appropriate-tools-strategically2.html) | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | **Standard** | **Learner Objectives** | | | Measurement and Data 4:  Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. | | * I can generate measurement data by measuring lengths using rulers marked with halves of an inch. * I can generate measurement data by measuring lengths using rulers marked with fourths of an inch. * I can create a line plot that represents gathered measurement data in appropriate units. (whole numbers, halves, quarters). |  |  | | --- | | **What does this standard mean the students will know and be able to do?** | | Students in second grade measured length in whole units using both metric and U.S. customary systems. It‘s important to review with students how to read and use a standard ruler including details about halves and quarter marks on the ruler. Students should connect their understanding of fractions to measuring to one-half and one-quarter inch. Third graders need many opportunities measuring the length of various objects in their environment.  This standard provides a context for students to work with fractions by measuring objects to a quarter of an inch.  Some important ideas related to measuring with a ruler are:   * The starting point of where one places a ruler to begin measuring * Measuring is approximate. Items that students measure will not always measure exactly ¼, ½ or one whole inch. Students will need to decide on an appropriate estimate length. * Making paper rulers and folding to find the half and quarter marks will help students develop a stronger understanding of measuring length * Students generate data by measuring and create a line plot to display their findings. | | **Example:** | | Measure objects in your desk to the nearest ½ or ¼ of an inch, display data collected on a line plot. How many objects measured ¼? ½? etc… |  |  |  |  | | --- | --- | --- | | **Lessons and Resources for Measurement and Data 4** | | | | [Line Plot Concepts](http://www.thatquiz.org/tq-5/?-j1f0g-l1-nu-p0) | [Under the Same Roof](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Under%20The%20Same%20Roof.pdf) | [The Pencil Survey](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/The%20Pencil%20Survey.pdf) |  |  |  |  |  | | --- | --- | --- | --- | | **Emphasized Standards for Mathematical Practice** | | | | | [1. Make sense of problems and persevere in solving them.](http://elementarymath.dmschools.org/1-make-sense-of-problems-and-persevere-in-solving-them3.html) | [4. Model with mathematics.](http://elementarymath.dmschools.org/4-model-with-mathematics3.html) | [5. Use appropriate tools strategically.](http://elementarymath.dmschools.org/5-use-appropriate-tools-strategically2.html) | [6. Attend to precision.](http://elementarymath.dmschools.org/6-attend-to-precision1.html) | |

**Optional Whole Group Lesson Progression**

Unit Pacing: 7 Weeks

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource** | **Location** | **Primary Focus** | **Standard** |
| Expressions | Page 782 – 783  Unit 11, Lesson 1, Activities 1  SAB p. 393 | * I can identify numerators. * I can identify denominators. * I can model fractional parts must be equal size. * I can show a fraction as a part of a whole or part of a group with a model. | NF.1, NF.2, G.2 |
| Sharepoint | [Top and Bottom Numbers](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Top%20and%20Bottom%20Numbers.docx) |
| Expressions | Page 784 – 786  Unit 11, Lesson 1 , Activity 2 |
| Sharepoint | [Correct Shares](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Correct%20Shares%20(1).docx)  (Complete this activity multiple times over several days) |
| Expressions | Page 787 – 788  Unit 11, Lesson 1 , Activity 3 |
| Sharepoint | [Finding Fair Shares](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Finding%20Fair%20Shares.docx)  (Complete this activity multiple times over several days) |
| Sharepoint | [Sharing Tasks](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/sharing_tasks.docx)  (Complete this activity multiple times over several days) |
| Sharepoint | [Fractional Part Counting](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Fractional%20Parts%20Counting%20(1).docx)  (Complete this activity multiple times over several days) |
| Resource will be hyperlinked soon. | Basic Fraction Match Game |
| Resource will be hyperlinked soon. | Fair Shares  P. 15, Session 8: Fair Shares: Problem Solving |
| Expressions | Page 792  Unit 11, Lesson 2, Activities 1 – 2  SAB p. 399 |
| Sharepoint | [More, Less, Equal to One Whole](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/More,%20Less%20or%20Equal%20to%20One.docx) (Complete this activity multiple times over several days) |
| Expressions | Page 793 – 794  Unit 11, Lesson 2, Activity 2  SAB p. 400 | * I can show a fraction as a part of a whole or part of a group with a model. |  |
| Expressions | Page 916  Unit 11, Lesson 9, Activities 1 – 2 | * I can identify numerators. * I can identify denominators. * I can model fractional parts must be equal size. * I can show a fraction as a part of a whole or part of a group with a model. | NF.1, NF.2, G.2 |
| Resource will be hyperlinked soon. | Independent: p. 39 |
| Internet | [Number Line Introduction: power point](http://www.google.com/url?sa=t&rct=j&q=number%20line%20powerpoint&source=web&cd=5&ved=0CEAQFjAE&url=https%3A%2F%2Ffcserver.nvnet.org%2F~snyder%2FS04C30EEE.3%2FHow%2520to%2520Find%2520a%2520Fraction%2520on%2520a%2520Numberline.ppt&ei=1_-tUeiQF6PS0wGmr4CwBA&usg=AFQjCNEmChkcUr0AhQ_XIIPLwk44XpNbFg&bvm=bv.47244034,d.dmQ) | * I can represent a fraction on a number line when 1 is the numerator (a). * I can represent a fraction on a number line when the numerator is more than 1 (a). * I can identify a fraction on a number line (b). * I can identify a fractional part on a number line (b). | NF.2 |

**Optional Whole Group Lesson Progression**

Unit Pacing: 7 Weeks

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource** | **Location** | **Primary Focus** | **Standard** |
| Resource will be hyperlinked soon. | 5.4 Mixed Number Names  Independent Practice: How Much Pizza | * I can represent a fraction on a number line when 1 is the numerator (a). * I can represent a fraction on a number line when the numerator is more than 1 (a). * I can identify a fraction on a number line (b). * I can identify a fractional part on a number line (b). | NF.2 |
| Sharepoint | [How Many Inches](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/How%20many%20inches.docx) |
| Quantiles.com | [The Broken Ruler part 1](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Broken%20Ruler%20Part%20One.pdf)  [The Broken Ruler part 2](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Broken%20Ruler%20Part%20Two.pdf) |
| Expressions | Page 842 – 844  Fractions Strips | * I can recognize simple equivalent fractions * I can explain why fractions are equivalent. * I can recognize fractions that are equivalent to whole numbers. * I can express whole numbers as fractions * I can compare two fractions with the same numerator. * I can compare two fractions with the same denominator. * I can recognize that to correctly compare two fractions they must have the same whole. * I can compare fractions using >, <, or =. | NF.3 |
| Expressions | Page 845 – 846  Fraction Strips |
| Quantiles.com | [To What are You Equal](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/To%20What%20Are%20You%20Equal.pdf) |
| Sharepoint | [Choose, Explain, Test](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Choose,%20Explain,%20Test.docx)  [With Same Denominator](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Choose,%20Explain,%20Test.docx) | * I can compare two fractions with the same denominator. * I can recognize that to correctly compare two fractions they must have the same whole. * I can compare fractions using >, <, or =. | NF.3 |
| Resource will be hyperlinked soon. | Additional Teac her Material: Conceptual Thought Patterns p. 147 (#1 – 2) |
| Sharepoint | [Choose, Explain, Test](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Choose,%20Explain,%20Test%20and%20Different%20Fillers.docx)  [With Same Numerator](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Choose,%20Explain,%20Test%20and%20Different%20Fillers.docx) |
| Quantiles.com | [Recognize and Compare Fractions](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Recognize%20and%20Compare%20Fractions.pdf) |
| Sharepoint | [Line ‘Em Up](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Line%20Em%20Up.doc)  How can they use what they learned in with Choose, Explain, Test to decide placement on number line | * I can represent a fraction on a number line when 1 is the numerator (a). * I can represent a fraction on a number line when the numerator is more than 1 (a). * I can identify a fraction on a number line (b). * I can identify a fractional part on a number line (b). | NF.2 |
| Sharepoint | [Different Fillers](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Different%20Fillers.docx) | * I can recognize simple equivalent fractions * I can recognize fractions that are equivalent to whole numbers. * I can explain why fractions are equivalent. | NF.3 |
| Resource will be hyperlinked soon. | Fraction Game: Which is Less? Which is More? | * I can recognize that to correctly compare two fractions they must have the same whole. * I can compare fractions using >, <, or =. | NF.3  NF.2 |
| Resource will be hyperlinked soon. | Comparison Problems p. 24 |
| Quantiles.com | [Match Me](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Match%20Me.pdf) |
| Quantiles.com | [Fractions on a Double Number Line](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Fractions%20on%20a%20Double%20Number%20Line.pdf) |
| Resource will be hyperlinked soon. | Working with Number Lines – Walking You Home: p. 26 |
| Quantiles.com | [Under the Same Roof](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/Under%20The%20Same%20Roof.pdf) | * I can generate measurement data by measuring lengths using rulers marked with halves of an inch. * I can generate measurement data by measuring lengths using rulers marked with fourths of an inch. * I can create a line plot that represents gathered measurement data in appropriate units. (whole numbers, halves, quarters). | MD.4 |
| Quantiles.com | [The Pencil Survey](https://sharepoint.dmps.k12.ia.us/sites/divisions/curr/Public%20Curriculum%20Documents/Mathematics/Elementary%20Math%202013%20-%202014/3rd%20Grade/Investigations%20Unit%204/The%20Pencil%20Survey.pdf) |

**\*Units pacing is approximate. Some lessons may take more than one day. Use teacher discretion based on student need when planning unit length.**