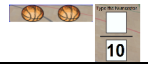
## CLIP 1: Representing Simple Fractions

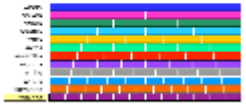
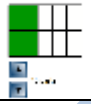
| Critical Learning: |
|---|
| ♦ **representing** simple fractions between 0 and 1 using denominators 1 to 10 inclusive using physical models, pictures, numbers, diagrams and making connections among representations<br>♦ **communicating** their understanding of the connections among the different types of representations of simple fractions<br>♦ **reasoning** how to adjust one representation of a fraction given a different type of representation, based on feedback about accuracy |

| Activity Number | Activity Title | Math content |
|---|---|---|
| 1.1<br>Minds On | Introduction: Representing Simple Fractions<br>  | Students will:<br>• examine various representations of part/whole relationships using area and set models<br>• define the terms ‘numerator‘& ‘denominator’ and learn about their origins |
| 1.2<br>Action | Fractions: Area Representations<br>  | Students will:<br>• explore how fractions can be used to represent equally shared parts of areas and parts of sets<br>• understand that to determine which fraction is being represented, one first needs to know what the whole is<br>• recognize that shading parts to represent a fraction can be done in a variety of ways.<br>• recognize that in an area representation the parts must have equal areas but do not have to be the identical shape<br>• use the “denominator” to describe the type of fractional part and the “numerator” to describe the number of parts |
| 1.3<br>Action | Fractions: Linear Measure Representations<br>  | Students will:<br>• investigate the meaning of fractions as used in measurement (including measuring lengths in inches and measuring portions of a cup for recipes) |
| 1.4<br>Action | Fractions: Set Representations<br>  | Students will:<br>• investigate the meaning of fractions as used for representing parts of sets using inventory of balls and instruments |

| | | |
|---|---|---|
| 1.5 Consolidation | Creating Visual Representations  | Students will:<br>• select a representation (from rectangle, circle or length) and model different fractions using that representation. |
| 1.6 Consolidation | Quiz: Representing Simple Fractions | Students will review and practice the following:<br>• naming fractions to represent something shown in a diagram<br>• selecting a diagram to represent a given fraction |
| 1.7 Show What You Know | | |
| 1.7.1 Assessment Game | Fractions Card Game (printable)  | Students will:<br>• practice connecting fractions to their pictorial representations |
| 1.7.2 Assessment Think Aloud | Creating Visual Representations | Students will:<br>• reflect on, and justify the visual representations they create to represent fractions using activity 1.5 |
| 1.7.3 Assessment Demonstration | Using Manipulatives (online and printable)  | Students will:<br>• represent fractions using manipulatives |
| 1.7.4 Assessment Quiz | Quiz (think-aloud) | Students will:<br>• communicate their understandings of fractions and related visual representations using activity 1.6 |

## CLIP 2: Forming and Naming Equivalent Fractions

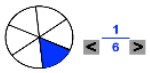
| Critical Learning: |
|---|
| ♦ **connecting** equivalent, but different, representations of a fraction shown pictorially<br>♦ **reasoning** how to form an equivalent pictorial or numerical representation of a fraction to a given pictorial or numerical representation of a fraction by splitting all the original parts into the same number of equal smaller parts |

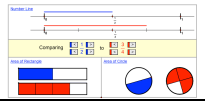
| Activity Number | Activity Title | Math content |
|---|---|---|
| 2.1<br>Minds On | Recognizing Equivalent Fractions  | Students will:<br>• connect prior knowledge of money, time, measurement and sharing food to investigate equivalent fractions |
| 2.2<br>Action | Folding Circles  | Students will:<br>• investigate fractions equivalent to ¾ using 8ths and 16ths by folding a shaded circle<br>• investigate fractions equivalent to ¼ using 8ths and 16ths<br>• investigate how the whole circle can be named using 4ths, 8ths and 16ths |
| 2.3<br>Action | Fraction Strips  | Students will:<br>• investigate fractions equivalent to 1 using halves, thirds, fourths, ...twelfths, using fraction strips<br>• reflect on how fractions equivalent to 1 can have any number of parts, but fractions equivalent to other fractions have limitations on the number of parts (i.e. a fraction equivalent to 1/2 with 3 parts would have a fraction in its numerator) |
| 2.4<br>Action | Forming Equivalent Fractions  | Students will:<br>• investigate how dividing areas of different shapes into more or less parts can show equivalent fractions |
| 2.5<br>Consolidation | Practice: Forming Equivalent Fractions | Students will:<br>• practice creating equivalent fractions using all tools developed in this CLIP |
| 2.6 Show What You Know | | |
| 2.6.1<br>Assessment Game | Dominoes (printable)   | Students will:<br>• practice matching fractions with equivalent fractions and with pictorial representations |
| 2.6.2<br>Assessment Demonstration | Creating Fractions using number cubes | Students will:<br>• practice creating equivalent fractions and using pictorial representations to prove that their fractions are equivalent |

| | | |
|---|---|---|
| 2.6.3 Assessment Think Aloud | Forming Equivalent Fractions (online) | Students will:<br>• communicate their understanding and reasoning while creating equivalent fractions using the tools available in activity 2.5 |
| 2.6.4 Assessment Organizer | Mini-Book (printable) | Students will:<br>• reflect on what they have learned in this clip and record their learning in a mini-book. |

## CLIP 3: Comparing Simple Fractions

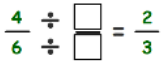
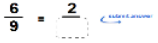
| Critical Learning: |
|---|
| ♦ **reasoning** which given fraction represents a larger/smaller quantity based on comparisons of numerators when denominators are same, or comparisons of denominators when numerators are the same, and comparisons of fractions to the benchmark fraction of one-half (e.g., ½, 2/4, 3/6)<br>♦ **reflecting** on the relative sizes of unit fractions (e.g., 1/3, ¼, 1/5)<br>♦ **reflecting** on which of three types of reasoning for comparing two fractions can be used |

| Activity Number | Activity Title | Math content |
|---|---|---|
| 3.1<br>Minds On | Introduction: Comparing Simple Fractions<br>  | Students will:<br>• investigate strategies for comparing fractions with the same denominator or the same numerator<br>• compare fractions to the benchmarks 0, 1 and ½ |
| 3.2<br>Action | Comparing Fractions: Same Denominator<br>  | Students will:<br>• reflect on how fractions with the same denominator can be compared by comparing their numerators<br>• use inequality signs when comparing fractions with the same denominator |
| 3.3<br>Action | Comparing Fractions: Same Numerator<br>  | Students will:<br>• define the term 'unit fraction'<br>• use fraction strips to reason that the larger the denominator in a unit fraction, the smaller each of the parts will be<br>• reflect on how fractions with the same numerator can be compared by comparing the size of their corresponding unit fractions. |
| 3.4<br>Action | Using the Benchmark One-Half<br>  | Students will:<br>• hear examples of students reflecting on the strategies they used to compare fractions to ½<br>• investigate how some fractions can be compared to each other by first comparing them to the benchmark ½ |
| 3.5<br>Consolidation | Benchmark Baskets/Bins Sketch<br>  | Students will:<br>• use the benchmark ½ to compare fractions<br>• reflect on when the benchmark strategy is and is not helpful when comparing 2 fractions<br>• communicate their thinking when comparing fractions |

| | | |
|---|---|---|
| 3.6 Consolidation | Practice: Comparing Fractions Strategies Sketch  | Students will<br>• select a strategy for comparing sets of given fractions, then use that strategy to compare them |
| 3.7 Consolidation | Quiz: Comparing Simple Fractions | Students will<br>• review and practice selecting and using strategies to compare fractions |
| 3.8 Show What You Know | | |
| 3.8.1 Assessment Puzzle | Fraction Challenge (printable) | Students will:<br>• practice choosing fractions that are smaller than a given fraction in a paper and pencil puzzle |
| 3.8.2 Assessment Think Aloud | Comparing Fractions Strategies (online) | Students will:<br>• communicate their reasoning while comparing fractions using activity 3.5 |
| 3.8.3 Assessment Demonstration | Creating Fractions Using Number Cubes | Students will:<br>• create fractions using number cubes, and then explain which strategy they would use to compare the fractions |
| 3.8.4 Assessment Quiz | Quiz: Comparing Simple Fractions | Students will:<br>• communicate their thinking with a partner while completing the assessment quiz from activity 3.7 |

## CLIP 4: Forming Equivalent Fractions by Splitting or Merging Parts

| Critical Learning: |
|---|
| ♦ **reasoning** how to adjust the total number of equal parts in the whole (denominator) and the number of selected parts (numerator) to make an equivalent fraction to the given pictorial or numerical representation when the original parts are split or merged<br>♦ **connecting** multiplication and division of both the numerator and denominator to splitting, and to merging or regrouping parts to form equivalent fractions<br>♦ **representing** a given numerical fraction in higher or lower terms |

| Activity Number | Activity Title | Math content |
|---|---|---|
| 4.1<br>Minds On | Introduction<br>  | Students will:<br>• investigate, through area models and realistic examples, the creation of equivalent fractions in higher terms by dividing parts into more equal parts, and in lower terms by merging parts |
| 4.2<br>Action | Splitting Parts<br>  | Students will:<br>• create equivalent fractions by dividing a swimming pool for different events<br>• create equivalent fractions by dividing the area of rectangles and circle<br>• connect the area division model to the mathematics used to create equivalent fractions by multiplication |
| 4.3<br>Action | Merging Parts<br>  | Students will:<br>• create equivalent fractions by merging sections of a tackle box<br>• connect the merging model to the mathematics used to create equivalent fractions by division |
| 4.4<br>Action | Forming Equivalent Fractions Sketch<br>  | Students will:<br>• practice determining an equivalent fraction given either the denominator or the numerator<br>• practice creating equivalent fractions given an initial fraction<br>• investigate equivalent fractions using an equivalent fraction tool or fraction strips |
| 4.5<br>Consolidation | Practice: Forming Equivalent Fractions<br>  | Students will:<br>• practice creating equivalent fractions<br>• determine what number can be used in division or multiplication to create an equivalent fraction |
| 4.6<br>Consolidation | Quiz: Equivalent Fractions<br>  | Students will<br>• determine a missing numerator or denominator in a set of equivalent fractions<br>• determine whether a set of fractions are equivalent |
| 4.7 Show What You Know | | |

| | | |
|---|---|---|
| 4.7.1 Assessment Think Aloud | Fraction Strips (online and printable) | Students will:<br>• explain why pairs of fractions are equivalent using fraction strips |
| 4.7.2 Assessment Quiz | Quiz: Equivalent Fractions (online) | Students will:<br>• justify their answers to quiz questions from activity 4.6 with a partner |
| 4.7.3 Assessment Think Aloud | Forming Equivalent Fractions | Students will:<br>• communicate their thinking while forming equivalent fractions using activity 4.5 |
| 4.7.4 Assessment Story | Storyboard a 'who cares' video | Students will:<br>• reflect on what they have learned about fractions and the importance of fractions in their lives. |

## CLIP 5: Representing Improper Fractions as Mixed Numbers

| Critical Learning: |
|---|
| ♦ **representing** improper fractions as mixed numbers with denominators 1 to 10 inclusive using physical models, pictures, numbers, diagrams<br>♦ **reasoning** which fraction represents a larger/smaller quantity based on a comparison of each fraction to the benchmark 1 |

| Activity Number | Activity Title | Math content |
|---|---|---|
| 5.1<br>Minds On | Pizza Party<br>  | Students will:<br>• define the terms 'proper fraction', 'improper fraction' and 'mixed number'<br>• recognize that a quantity can be represented by both an improper fraction and a mixed number<br>• realize that mixed numbers make estimating the size of a fraction easier. |
| 5.2<br>Action | Leftovers<br>  | Students will:<br>• represent improper fractions in halves, thirds, fourths and sixths as mixed numbers |
| 5.3<br>Consolidation | Dropball Game<br>  | Students will:<br>• place proper and improper fractions between 0 and 5 on a number line |
| 5.4 Show What You Know | | |
| 5.4.1<br>Assessment<br>Think Aloud | Leftovers<br>(online) | Students will:<br>• communicate their thinking while representing improper fractions as mixed numbers using activity 5.2 |
| 5.4.2<br>Assessment<br>Demonstration | Pattern Blocks<br>(printable) | Students will:<br>• represent fractions using pattern blocks |
| 5.4.3<br>Assessment<br>Organizer | Frayer Model | Students will:<br>• summarize their learning using a Frayer model |
| 5.4.4<br>Assessment<br>Think Aloud | Dropball Game | Students will:<br>• communicate their thinking while playing the fraction Dropball game from activity 5.3 |