

Fractions

Grade 3

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Activity 1

Learning Goal:

I can identify and create unit fractions.

Standard:

3.NF.A.1 I can identify 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 $1/b$.

3.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

Mathematical Practices:

#6 Attend to precision: Students need to be precise in their cutting of fractional pieces. They will fold the circle in different fractional parts before cutting. The parts of the whole must be equal pieces.

#3 Construct viable arguments and critique the reasoning of others: Students will discuss the relationship between fractions (compare and contrast) and begin to recognize equivalent fractions.

Materials: Different colors of construction paper cut into circles that are all the same size, one full sheet of construction paper per student, scissors, glue.

Procedures:

1. Students will each have about 6 construction paper circles. (pre cut) Teacher will first guide them to first fold the circle in half, then cut, followed by $\frac{1}{4}$, and $\frac{1}{8}$. (They can cut several of each.)
2. Teacher asks guided questions to lead students to discover the relationship between fractions. For example, What do you notice? Do they have anything in common?
3. Students then use their fraction pieces to create a piece of art. (See example below)



4. When students are finished, they share pictures and discuss fractions represented in their pictures.

Adaptations:

Below level-Students work with a partner or teacher assistance. Allow students to see an example of putting the shapes together to make a picture.

Above Level-Students can make more complex fractions, or see if they can make thirds and sixths.

Assessment Plan:Teacher observation. Students should cut out equal pieces.

Resources: Lesson created by teachers based on a picture seen on Google images.

Activity 2

Learning Goal:

I can place fractions on a number line.

Standard:

3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.

Mathematical Practices:

#3 Construct viable arguments and critique the reasoning of others. Students will be able to look at the different posters and agree or disagree with the group's decisions and support their reasoning.

#6 Attend to precision: Students will need to be precise in where the stickers are placed.

Materials: Paint tape, different colors of circle stickers.

Procedures:

1. Teacher puts up a strip of tape to represent a number line on chart paper. (enough for each group to have one)
2. Students work in small groups. Each group is given a different fraction to show on their number line. They must place their circle stickers on the appropriate places on their number line.
3. Students go on a gallery walk and each group writes whether they agree or disagree with the placement of the fractions and why.
4. Whole group will discuss and work together to correct any errors.
5. Teacher will combine the number lines, one on top of each other, on a new sheet of paper. This allows students to compare fractions and begin to see equivalent fractions.

Adaptations:

Below level: Students can be in differentiated groups, either working with larger unit fractions, or they may be placed with students that understand the concept and that will help guide their thinking.

Above Level: Students work with the smaller unit fractions. They could plot more than one unit fraction on their number line.

Assessment Plan: Exit ticket: Students will write down what they learned today as a quick formative assessment.

Resources:

Activity 3

Learning Goal:

I can place fractions on a number line.

Standard:

3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.

Mathematical Practices:

#5- Use appropriate tools strategically: The tools include markers, paper with a picture of a circle, and yarn. In this activity, the students are using a piece of yarn that is the exact length of the circumference of the circle. They use the markers to draw the length of the yarn. This helps them make the connection of the whole circle being the number line from 0 to 1. Students then use the yarn and the circle to measure and show on the number line $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$.

#6-Attend to precision. Students need to work precisely to create the number line and label the points on the yarn and the number line in equal distances.

Materials: Copies of pizza pie activity page 7 for each student, yarn cut to 10 $\frac{1}{2}$ inches for each student, 3 different color markers for each student.

Procedures:

1. Students will discuss different ways to express fractions, what method they feel most comfortable with, and discuss how to use a pizza to express fractions. Students will follow the procedure in the video.

Adaptations:

Below level Students may show only halves and fourths. They could work with a partner or teacher for more support. More than one string can be used for each fraction instead of marking all of the fractions on the same string.

Above Level Students may go further with making $\frac{1}{16}$ sections. Students could begin looking at equivalent fractions, or come up with another method to plot fractions on a number line.

Assessment Plan: Teacher observation, use pre-assessment activity as an exit ticket. Students will plot fractions on a number line.

Resources:

[Pizza Pie and the Number Line Video](#)

[Pizza Pie and the Number Line handouts](#)

Activity 4

Learning Goal:

I can identify fractions on a number line.

Standard:

3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.

Mathematical Practices:

MP.1 Make sense of problems and persevere in solving them: Students need to be able to recognize where fractions fall on the number line and they also need to recognize that they will need to have equal distances between the fractions.

MP.4 Model with mathematics: Students will use the number line to recognize where the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{6}$, and $\frac{1}{8}$ fall on the number line.

Materials:

pre-assessment (2 copies for each student, one set will be for post assessment)
pp5-6 of Peter's Garden

Procedures:

1. Students will complete a pre-assessment (p.86 of [Peter's Garden](#)) that asks them to identify the fractions on a given number line.
2. Warm-Up Problem
 - a. Mr. Ray is knitting a scarf. He says that he has completed one-fifth of the total length. Model the entire scarf and label the completed part.
 - b. Make connections between linear/rectangular models and the number line by adding 0 and 1.
 - c. Have students help finish labeling $\frac{2}{5}$, $\frac{3}{5}$, and $\frac{4}{5}$.
3. Have students watch [Identify Fractions on a Number Line learnzillion video](#) and discuss any insights or questions students have afterwards.
4. Students will then complete [Peter's Garden task](#) (pp5-6).

Adaptations:

Below level: Students who did poorly on the pre-assessment can be pulled into a smaller group and work on the assignments with the teacher.

Above Level: Students can work their way into comparing fractions and answering story problems that compare two fractions and then they need to explain and justify their

answers. Students can also create their own story problems using fractions and the number line and comparing more than one fraction.

Assessment Plan:

Students will take the pre-assessment again showing new learning.

Resources:

[Peter's Garden Task](#)

[EngageNY module 5](#)

Rich Tasks

1. [Chocolate](#) *"If the chocolate on the table I sit at is to be shared out equally when I sit down, which would be the best table to sit at?"*
2. [Rectangle Tangle](#) *"Can you untangle what fractional part is represented by each of the ten numbered shapes?"*
3. [Dividing a Cake](#) *"Where were the cuts and what fraction of the whole cake was each piece?"*

Literature Books to Support Teaching the Standard(s)

Fractions = Trouble! by Claudia Mills

A Fraction's Goal—Parts of a Whole by Brian P. Cleary

Fraction Fun by David A. Adler

Fraction Action by Loreen Leedy

Give Me Half! by Stuart J. Murphy

Full House: An Invitation to Fractions by Dayle Ann Dodds

The Wishing Club: A Story About Fractions by Donna Jo Napoli

Go, Fractions! by Judith Bauer Stamper

Pizza Parts: Fractions! by Linda Bussell

Holiday Fractions by Jennifer Rozines Roy and Gregory Roy

Apple Fractions by Donna Townsend

Great Videos to Support What You're Teaching

[CCSS Third Grade Fractions: Standard 1 Lesson](#)

[Simple and Easy Third Grade Fractions](#)

[All About Fractions for Third Grade](#)

[Fractions on a Number Line](#)

[Fractions on Number Lines](#)

[Mr. S Third Grade Fraction Lesson](#)

[Fractions for Third Grade](#)

[Fractions: Parts of a Whole](#)

[Teaching Common Core Third Grade Fractions with an iPad](#)

Great Virtual Games and Resources to Support What You're Teaching

[Virtual Fraction Tiles](#): A great support for any lesson on fractions as students drag and drop the colorful tiles they want to work with

[Pizza Fractions](#): With different levels available, this is excellent practice for students who are beginning to learn fractions as they create different fractions through slices of pizza

[Bridge Builders](#): Students journey through the land of fractions as they determine the parts of the bridge that are missing

[Fraction Identification](#): Students identify fractions by typing a numerator and denominator based on the visual representation provided

[Shady Business](#): Based on the given fraction, students shade in the provided shape to match the given number of parts