



Hagan su propia recta numérica

Standards

Addressing 3.NF.A.2, 3.NF.A.3

Instructional Routines

- Which Three Go Together?

Goals

- Explain (orally) strategies for locating and labeling whole numbers, unit fractions, and non-unit fractions on the number line.
- Express comparisons of fractions and whole numbers, using $>$, $<$, and $=$.

Student Facing Learning Goals

Hagamos rectas numéricas y comparemos fracciones.

Lesson Purpose

The purpose of this lesson is for students to create their own number line to represent and compare fractions.

Narrative

In previous lessons, students learned to represent fractions on number lines and to record the result of a comparison of fractions with the symbol $>$, $<$, or $=$. In this lesson, students create their own number lines to practice writing fraction comparison statements.

If students need additional support with the concepts in this lesson, refer back to Unit 5, Section B in the curriculum materials.

Access for Students with Disabilities

- Action and Expression

Access for English Learners

- MLR8

Required Materials

Materials to Gather

- Markers: Activity 1
- Tape (painter's or masking): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	25 min
Activity 2	10 min
Synthesis Estimate	10 min

Teacher Reflection Questions

What methods did students use most today when they were locating fractions on their number lines? What strategies do you want students to use more frequently?



Warm-up

Cuáles tres van juntos: Fracciones en rectas numéricas

Standards

Addressing 3.NF.A.2

Instructional Routines

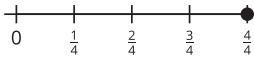
- Which Three Go Together?

This *Warm-up* prompts students to compare four images. It gives students a reason to use language precisely (MP6). It gives the teacher an opportunity to hear how students use terminology to talk about characteristics of the items in comparison to one another. During the discussion, ask students to explain the meaning of any terms they use, such as “marca” // “tick mark,” “número” // “label,” “fracción unitaria” // “unit fraction,” “número entero” // “whole number,” and “longitud” // “length.”

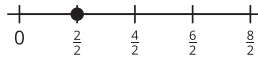
Student Task Statement

¿Cuáles 3 van juntas?

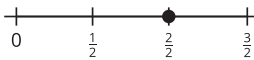
A



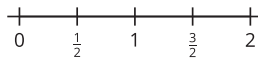
B



C



D



Launch

- Groups of 2
- Display the image.
- “Escojan 3 rectas numéricas que vayan juntas. Prepárense para compartir por qué van juntas” // “Pick 3 number lines that go together. Be ready to share why they go together.”
- 1 minute: quiet think time

Activity

- “Discutan con su compañero cómo pensaron” // “Discuss your thinking with your partner.”
- 2–3 minutes: partner discussion
- Share and record responses.

Student Response

Sample responses:

A, B, and C go together because:

- They use fractions to label whole numbers that are not 0.
- They have a point to show a location on the number line.

A, B, and D go together because:

- They have 5 tick marks.
- They have 4 intervals or lengths between tick marks.
- The last tick mark represents a whole number.

A, C, and D go together because:

- They have a label that shows a unit fraction.

B, C, and D go together because:

- They use fractions with denominators of 2.

Activity Synthesis

- “¿Por qué las 4 van juntas?” // “Why do all 4 go together?” (All are number lines. All have labels written as fractions. The length between tick marks on each number line is the same. All start with and label 0.)



- The length from 0 to the last tick mark on the line is more than 1.

Activity 1

🕒 25 min

Hagan su propia recta numérica

Standards

Addressing 3.NF.A.2

The purpose of this activity is for students to use their fraction reasoning skills to practice locating fractions on a number line. Students should be in groups, but the groups should stay small enough that every member has a chance to share their ideas. Be sure to space groups so that each has their own area in which to work. Students write the fractions on their tape. Students will use the number line they create here in the next activity.

As they place the different numbers, students think about the meanings of the numerator and the denominator in the fractions and how whole numbers can be written as fractions (MP7).

Access for English Language Learners

MLR8 Discussion Supports. Synthesis: At the appropriate time, give groups 2–3 minutes to plan what they will say when they present to the class. “*Practiquen lo que van a decir cuando compartan su recta numérica con toda la clase. Hablen sobre lo que es importante decir y decidan quién va a compartir cada parte*” // “Practice what you will say when you share your number line with the class. Talk about what is important to say, and decide who will share each part.”

Advances: Speaking, Conversing, Representing

Access for Students with Disabilities

Action and Expression: Develop Expression and Communication. Synthesis: Identify connections between strategies that result in the same outcomes but use different approaches.

Supports accessibility for: Memory

Required Materials


Materials to Gather

- Markers: Activity 1
- Tape (painter's or masking): Activity 1

Required Preparation

- Each group of 3 or 4 students needs a roll of tape and a marker.

Student Task Statement

 Hagan una recta numérica larga en el piso.

Launch

- Groups of 3 or 4

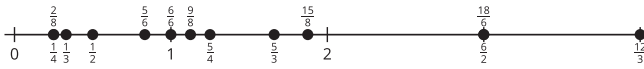


Ubiquen y marquen cada fracción y cada número entero en la recta numérica. Prepárense para explicar su razonamiento.

0 1 2 $\frac{1}{2}$ $\frac{1}{3}$ $\frac{6}{2}$ $\frac{12}{3}$ $\frac{1}{4}$ $\frac{5}{4}$ $\frac{6}{6}$
 $\frac{5}{6}$ $\frac{9}{8}$ $\frac{15}{8}$ $\frac{5}{3}$ $\frac{18}{6}$ $\frac{2}{8}$

- “Hoy van a hacer una recta numérica con su grupo y van a ubicar fracciones en ella. Prepárense para compartir sus métodos con la clase” // “Today you are going to work with your group to create a number line and place fractions on it. Be prepared to share your methods with the class.”
- Give each group a roll of tape and a marker.

Student Response



Activity

- 10–15 minutes: small-group work time
- Monitor for methods that groups use to locate the points, such as:
 - Start with benchmark numbers, such as unit fractions or whole numbers.
 - Consider whether fractions are greater than or less than 1.
 - Consider whether fractions are equivalent to whole numbers.
 - Compare fractions with the same numerator or the same denominator.

Activity Synthesis

- Have each group share a method they used or a fraction they placed, based on what you noticed during the activity. Encourage groups to use their number lines when demonstrating their reasoning.
- Consider asking:
 - “¿Algún grupo usó una estrategia similar?” // “Did any groups use a similar strategy?”
 - “¿Algún grupo ubicó esa fracción de otra forma?” // “Did any groups place that fraction in a different way?”
 - “¿Cuáles fracciones fueron más fáciles de ubicar?” // “Which fractions were easier to locate?”
 - “¿Cuáles fracciones fueron más complicadas de ubicar?” // “Which fractions were harder to locate?”
- Keep number lines displayed for the next activity.



Activity 2

10 min

Hagamos una afirmación

Standards

Addressing 3.NF.A.3

The purpose of this activity is for students to use the number line they created in the previous activity to make comparison statements about fractions. Students use the symbols $>$, $<$, and $=$ to record comparisons between pairs of fractions.

Student Task Statement

Escribe 6 afirmaciones de comparación de fracciones acerca de los números de tu recta numérica. Haz 2 afirmaciones con cada símbolo ($>$, $<$, $=$).

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Escoge 2 afirmaciones de las que escribiste. Usa números, imágenes o palabras para mostrar que son verdaderas.

Student Response

Sample responses:

- $\frac{18}{6} = 3$: They are at the same location on the number line.
- $1 > \frac{1}{2}$: $\frac{1}{2}$ is to the left of 1, so I know 1 is greater than $\frac{1}{2}$.

Lesson Synthesis

“¿Cómo decidieron qué tan larga debía ser su recta numérica? ¿Importa qué tan larga sea?” // “How did you decide how long your number line should be? Does it matter?” (We looked at the greatest number we had and made sure it would fit on the number line. Yes, because we had to make sure all the numbers would fit on the number line.)

“La recta numérica de un grupo es evidentemente más larga que la de otro grupo. ¿Eso cambia las afirmaciones de comparación que cada grupo puede hacer?” // “The number line of one group is noticeably longer than that of another

Launch

- Groups of 3 or 4
- “Ahora, con su grupo, van a escribir afirmaciones de comparación basándose en su recta numérica” // “Now you are going to work with your group to write comparison statements based on your number line.”

Activity

- 8–10 minutes: small-group work time
- Monitor for a variety of student-generated statements of each type to share during the *Activity Synthesis*.

Activity Synthesis

- Invite each group to share at least one comparison statement they came up with and their reasoning. Be sure to share at least one statement that uses each symbol.



group. Does that affect the comparison statements that each group could make?" (It wouldn't affect the comparison statements for one group working on their own number line, but if two groups tried to compare fractions with number lines of different lengths, their statements could be wrong.)

Cool-down

🕒 5 min

¿Dónde voy?

Standards

Addressing 3.NF.A.2

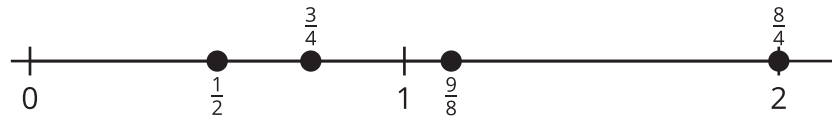
Student Task Statement

Ubica y marca cada número en la recta numérica. Explica tu razonamiento.

0 1 2 $\frac{1}{2}$ $\frac{3}{4}$ $\frac{8}{4}$ $\frac{9}{8}$



Student Response



Responding to Student Thinking

Students put the fractions in the correct order, but space them equally or do not attend to locating them as precisely as is reasonable.

Next Day Supports

Use the next day's *Warm-up* for students to discuss the size of halves, fourths, and eighths relative to each other.