



Marcas sin números

Standards

Addressing 2.MD.B.6, 2.NBT.A.2
Building Toward 2.MD.B.6

Instructional Routines

- Notice and Wonder

Goals

- Explain (orally) how to locate a whole number on a number line that does not label each number.
- Interpret (orally) number lines with unlabeled tick marks, including those that do not start at 0.

Student Facing Learning Goals

- Ubiquemos números en la recta numérica.

Lesson Purpose

The purpose of this lesson is for students to represent numbers within 100 on number lines that do not label each tick mark.

Narrative

In a previous lesson, students were introduced to the number line and represented the location of numbers with labeled tick marks and points up to 20.

In this lesson, students use multiples of 5 and 10 to locate numbers up to 100 on the number line. Students leverage their understanding of skip counting by 5 and 10 to locate numbers and build on their understanding of the number line as a representation that includes all numbers. In future lessons, students will estimate numbers on a number line without any tick marks by approximating the location of the number relative to the position of represented numbers.

Access for Students with Disabilities

- Action and Expression

Access for English Learners

- MLR2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Synthesis Estimate	10 min
Actividad de cierre	5 min

Teacher Reflection Questions

How effective were your questions in supporting students' thinking about the structure of the number line today? What did students say or do that showed they were effective?

Observa y pregúntate: De 0 a 30

Standards

Addressing **2.NBT.A.2**
 Building Toward **2.MD.B.6**

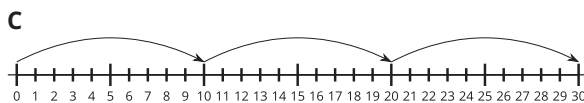
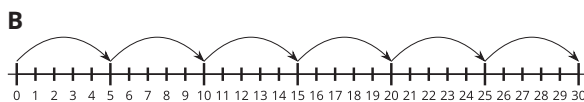
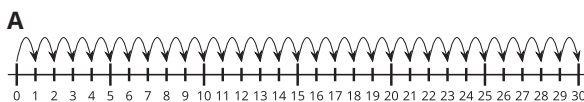
Instructional Routines

- Notice and Wonder

The purpose of this warm-up is to elicit ideas about what a number line can be used to represent. The sequence of diagrams emphasizes the position of multiples of 5 and 10 on the number line, which will be useful when students represent numbers on number lines that only include labeled tick marks at these positions. While students may notice and wonder many things about these number line diagrams, ideas about how the diagrams may represent counting are the important discussion points.

Student Task Statement

¿Qué observas? ¿Qué te preguntas?



Launch

- Groups of 2
- Display the number lines.
- “¿Qué observan? ¿Qué se preguntan?” // “What do you notice? What do you wonder?”
- 1 minute: quiet think time

Activity

- “Discutan con su compañero lo que pensarón” // “Discuss your thinking with your partner.”
- 1 minute: partner discussion
- Share and record responses.

Student Response

Students may notice:

- Each number line shows numbers 0–30.
- Each number line has the same amount of space between each number (each uses the same length unit).
- Each number line has arrows.
- The arrows in Number Line B point to numbers you say when you count by 5.
- The arrows in Number Line C point to numbers you say when you count by 10.

Students may wonder:

- Why are there arrows on the number line?
- What do the arrows mean?
- Does Number Line B show counting by 5?
- Does Number Line C show counting by 10?

Activity Synthesis

- “Estas rectas numéricas muestran cómo se ve cuando contamos a saltos usando diferentes números” // “These number lines help us see what it looks like when we count by different numbers.”
- “Contemos de 5 en 5 hasta 30, empezando en 0” // “Count to 30 by 5 starting with 0.”
- “¿Cuál recta numérica representa nuestro conteo? Expliquen” // “Which number line represents our count? Explain.” (B because the arrows show moving from 0 to 5 to 10 to 15...)
- “Contemos de 10 en 10 hasta 30, empezando en 0” // “Count to 30 by 10 starting with 0.”
- “¿Cuál recta numérica representa nuestro conteo? Expliquen” // “Which number line represents our

count? Explain." (C because the arrows show moving from 0 to 10 to 20 to 30).

Activity 1

🕒 15 min

Ubiquemos los números

Standards

Addressing 2.MD.B.6

The purpose of this activity is for students to work with number lines that only have multiples of 5 or 10 labeled and do not start with 0. Students reason about how a number line can be accurate without all the whole numbers labeled. Students use the numbers that are labeled to locate specific numbers on number lines. Students rely on the regular structure of the number line and the counting sequence in order to accurately place numbers (MP7).

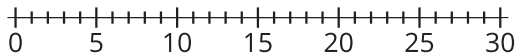
Access for English Language Learners

MLR2 Collect and Display. Collect the language students use as they work with number lines and discuss the number patterns. Display words, phrases, and representations, such as “*recta numérica*” // “number line,” “*distancia al cero*” // “distance from zero,” “*en orden*” // “in order,” “*intervalo*” // “interval,” “*espacios*” // “spaces,” “*marca*” // “tick mark,” “*punto*” // “point,” and “*patrón*” // “pattern.” During the *Synthesis*, invite students to suggest ways to update the display by asking, “What are some other words or phrases we should include?” Invite students to borrow language from the display as needed.

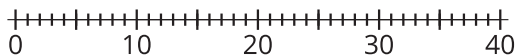
Advances: Conversing, Reading

Student Task Statement

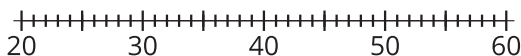
1. Ubica el 24. Márcalo con un punto.



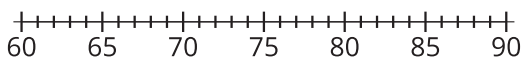
2. Ubica el 37. Márcalo con un punto.



3. Ubica el 48. Márcalo con un punto.



4. Ubica el 83. Márcalo con un punto.



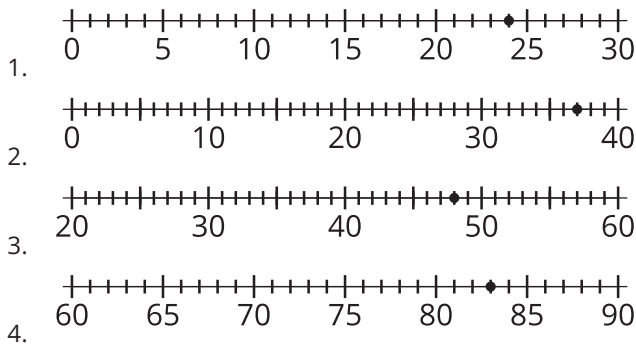
5. ¿Los números que marcaste en las rectas numéricas están ubicados en el lugar correcto? ¿Cómo lo sabes?

Launch

- Groups of 2
 - Display the first number line.
-
- A horizontal number line starting at 0 and ending at 30. Major tick marks are labeled at 0, 5, 10, 15, 20, 25, and 30. There are 4 smaller, unlabeled tick marks between each labeled tick mark, representing intervals of 1 unit.
- “¿Qué observan acerca de esta recta numérica?” // “What do you notice about this number line?” (Not all the tick marks are labeled. Only the fives are labeled.)
 - 30 seconds: quiet think time
 - Share responses.
 - “¿Las marcas con números están en los lugares correctos de la recta numérica? Expliquen” // “Are the labeled tick marks in the right spots on the number line? Explain.” (Yes because 5 is 5 length units from 0. 10 is 10 units from 0. There are 5 length units between each labeled mark.)
 - 30 seconds: quiet think time



Student Response



5. Sample responses:

- I know my point shows 37 because here is 40, and you can count back 3 spaces to find 37.
- I know my point is at 37 because I could count 37 units from 0.

- 1 minute: partner discussion
- Share responses.
- *“Hoy vamos a darles sentido y a usar rectas numéricas que no tienen números en cada marca” // “Today we are going to make sense of and use number lines that do not label every tick mark.”*

Activity

- *“Ubiquen cada número en la recta numérica y márkuenlo con un punto. Prepárense para mostrarle a su compañero cómo ubicaron los números y cómo saben que están en los lugares correctos” // “Locate each number on the number line and mark it with a point. Be ready to show your partner how you know you located the numbers and how you know they are in the right spots.”*
- 4 minutes: independent work time
- 4 minutes: partner work time
- Consider asking:
 - *“¿Cómo ubicaron este número?” // “How did you locate this number?”*
 - *“¿Cómo usaron las marcas con números?” // “How did you use the labeled tick marks?”*
 - *“¿Cómo saben que su número está en la longitud correcta medida desde 0?” // “How do you know your number is at the right length from 0?”*
- Monitor for students who show their number is at the right position by:
 - counting on from 0 or referencing the length from 0
 - counting on or back from a labeled tick mark
 - describing the length between each labeled tick mark

Activity Synthesis

- Display the number line labeled 20, 30, 40, 50, 60.
- Invite 1–2 previously identified students to share how they located 48.
- *“¿Cómo saben que su punto está a la distancia correcta desde 0?” // “How do you know your point is the right distance from 0?”* (It’s like when we measured from different spots on a ruler. The tick marks are spaced the same space apart and count by



1 length unit. We could draw the line back and find where 0 is.)

- “La representación de una recta numérica no puede representar todos los números con marcas, puntos o etiquetas. Podemos usar lo que sabemos basándonos en los números que están marcados para ubicar otros números” // “A number line representation cannot represent all numbers with tick marks, points, or labels. We can use what we know based on the numbers that are labeled to locate other numbers.”

Advancing Student Thinking

If students count every tick mark to locate numbers, consider asking:

- “¿Me explicas cómo ubicaste los números?” // “Tell me more about how you located the numbers.”
- “¿Cómo puedes usar las marcas con números como ayuda para encontrar un número?” // “How could you use the labeled tick marks to help you find a number?”

Activity 2

 20 min

¿Te falta algo?

Standards

Addressing 2.MD.B.6, 2.NBT.A.2

The purpose of this activity is for students to locate numbers up to 100 on a number line. They complete number lines that are labeled with multiples of 5 or 10 by using what they know about length on the number line and counting by 5 and 10. They use the labeled tick marks to locate and represent numbers within 100. When students explain to one another how they located different numbers on the number lines they construct viable arguments and may critique each other's reasoning (MP3).

Access for Students with Disabilities

Action and Expression: Develop Expression and Communication. Give students access to two colors of connecting cubes. Build a number line that changes color back and forth at intervals of 5. For example, 5 red cubes, 5 yellow cubes, 5 red cubes, 5 yellow cubes, and so on. The concrete visual of color representing intervals of 5 can be seen clearly.

Supports accessibility for: Conceptual Processing, Organization

Student Task Statement

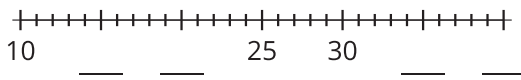
Completa cada recta numérica. Llena cada espacio con el número que la marca representa. Ubica cada número. Márcalo con un punto. Escribe debajo el número que le corresponde.

Launch

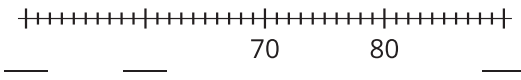
- Groups of 2



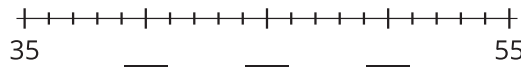
1. Ubica y marca el 17.



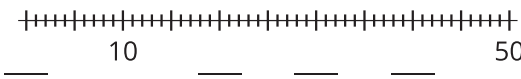
2. Ubica y marca el 59.



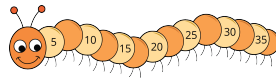
3. Ubica y marca el 43.



4. Ubica y marca el 35.



5. Comparte tus rectas numéricas con tu compañero.

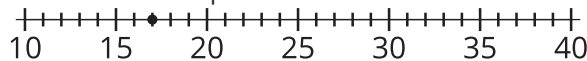


Activity

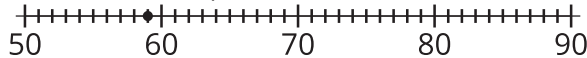
- *“Individualmente, completen cada recta numérica: llenen los espacios con el número que la marca representa. Luego, ubiquen cada número, márquenlo con un punto y escriban debajo del punto el número que le corresponde” // “On your own, complete each number line by filling in the missing labels with the number the tick mark represents. Then, locate each number, mark it with a point, and label the point with the number it represents.”*
- *“Cuando terminen, piensen cómo pueden explicarle a su compañero cómo saben que sus números y puntos están en los lugares correctos en las rectas numéricas” // “When you finish, think of how you can explain to your partner how you know your labels and points are at the right spots on the number lines.”*
- 5 minutes: independent work time
- *“Compartan su trabajo con un compañero. Asegúrense de que están de acuerdo sobre sus respuestas” // “Share your work with a partner. Make sure you agree on your answers.”*
- 5 minutes: partner discussion
- Monitor for students who:
 - explain their labeled tick marks based on counting by 5 or 10
 - explain their labeled tick marks based on the equal lengths between each labeled tick mark
 - use labeled tick marks to explain how they locate numbers

Student Response

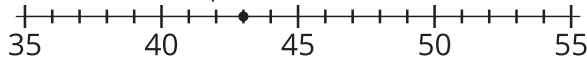
1. Students label the point as 17.



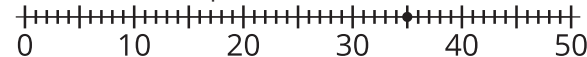
2. Students label the point as 59.



3. Students label the point as 43.



4. Students label the point as 35.



5. Sample responses:

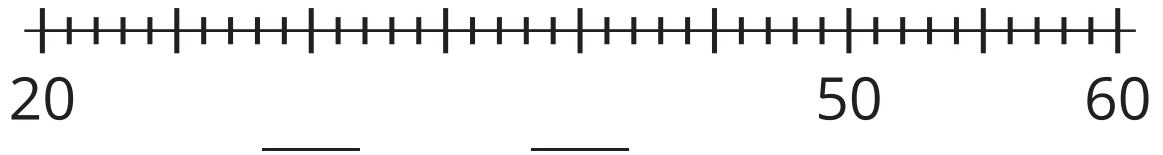
- I noticed there were 5 length units between 25 and 30 and between the missing tick marks too. I counted by 5 to fill in the missing labels.
- I know 17 is the right place because it is two units more than 15. I can also tell because it should show a length from 0 that is 7 units longer than 10.

Activity Synthesis

- Display the image of an incomplete number line labeled with 10 and 50.
- *“¿Cómo podemos encontrar el 35 sin completar los números que faltan?” // “How could you find 35 without filling in the missing labels?” (We could count back from 50. We could count on from 10.)*
- Invite previously identified students to explain how they found the labels and used them to locate 35.
- Complete the number line as students explain.

b. Ubica y marca el 37 en la recta numérica.

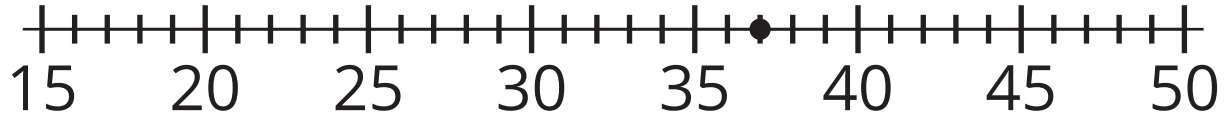
2. a.



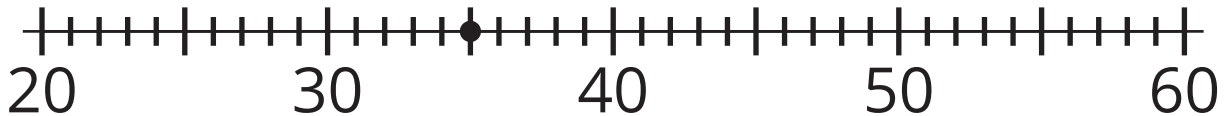
b. Ubica y marca el 35 en la recta numérica.

Student Response

1.



2.



Responding to Student Thinking

Students show they are thinking about skip-counting, but may not yet be using the structure of the number line to make sure the pattern makes sense. For example, on the second number line, students write 25 in the first blank instead of 30.

Next Day Supports

Before the *Warm-up*, pass back the *Cool-down* and invite students to work in small groups to discuss how they can prove their labels and points are accurate using the structure of the number line.