Unit 3, Lesson 2

# Midamos en centímetros

## Standards

| | |
|---|---|
| Addressing | **2.MD.A.1, 2.MD.A.4** |
| Building Toward | **2.MD.A.1** |

## Instructional Routines

- Notice and Wonder

## Goals

- Choose tools and explain (orally) how to use them to measure the length of objects in centimeters.
- Comprehend (in spoken and written language) the meaning of the term "centimeter."

## Student Facing Learning Goals

Midamos en centímetros.

## Lesson Purpose

The purpose of this lesson is for students to measure in centimeters.

## Narrative

In an earlier lesson, students learned the importance of using a standard unit to ensure that they can communicate clearly about their measurements. They learned that a single base-ten block is a centimeter cube because each edge of the cube is 1 centimeter long.

The purpose of this lesson is for students to measure in centimeters and consider more efficient ways to measure. Students use tools (base-ten blocks) that have lengths of 1 centimeter and 10 centimeters to measure the length of objects. In the *Warm-Up* and in the first activity, students begin a transition from describing their measurements of length based on the number of objects they use to describing the number of standard length units (centimeters) the objects represent. In the second activity, students choose to measure with centimeter cubes or 10-centimeter tools (base-ten block "tens") and explain their choices (MP5).

Give students access to base-ten blocks during the *Cool-Down*.

## Access for Students with Disabilities

- Action and Expression

## Access for English Learners

- MLR8

## Required Materials

**Materials to Gather**

- Base-ten blocks: Warm-up
- Base-ten blocks: Activity 1, Activity 2

**Materials to Copy**

- Length in Centimeters Handout (1 copy for every 1 students): Activity 1
- Measure with 10-centimeter Tools Handout, Spanish (1 copy for every 1 students): Activity 2

## Lesson Timeline

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

## Teacher Reflection Questions

What evidence have students given that shows they understand that a centimeter is a length unit? What language do they use to describe how they measure a length in centimeters?

# Warm-up

10 min

Observa y pregúntate: Centímetros

## Standards

Building Toward **2.MD.A.1**

## Instructional Routines

- Notice and Wonder

The purpose of this *Warm-up* is to elicit the idea that a centimeter is the length of the edge of a centimeter cube and to connect this with the length of a base-ten block composed of 10 centimeter cubes. This will be useful when students measure with base-ten blocks and report their measurements in centimeters in a later activity. While students may notice and wonder many things about these images, discussion about the shape labels and the meaning of a centimeter are the important discussion points. Students use and revise their language to clearly describe the images (MP6).

## Required Materials

**Materials to Gather**

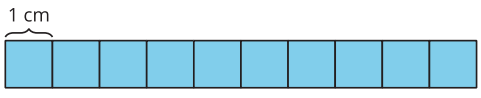
- Base-ten blocks: Warm-up

## Student Task Statement

¿Qué observas? ¿Qué te preguntas?

A


B




## Launch

- Groups of 2
- Display the image.
- *"¿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 pensaron"* // "Discuss your thinking with your partner."
- 1 minute: partner discussion
- Share and record responses.

## Student Response

Students may notice:

- It looks like base-ten blocks - a "one" and a "ten."

- Both pictures have a label that includes a 1.

Students may wonder:

- Is Image A a centimeter cube?
- Are these base-ten blocks?
- What does cm mean?
- Is cm the same as a centimeter?
- Is Image B 10 centimeters long?

### Activity Synthesis

- *"¿En qué se parecen las palabras en las imágenes? ¿En qué son diferentes?"* // "How are the labels on both images the same? How are they different?" (They both show the length of one square. They both show 1 length unit. One says centimeter and one says cm.)
- *"Ambas palabras muestran la longitud de 1 centímetro. 'Centímetro' es una palabra larga y puede ser difícil usarla para marcar tus unidades de longitud. Podemos usar cm para abreviar. 'c' representa centi y 'm' representa metro"* // "Both labels show the length of 1 centimeter. Centimeter is a long word and can be hard to use to label your length units. We can use cm for short. 'C' represents centi and 'm' represents meter."
- Display a centimeter cube and 10-centimeter tool.
- *"Si la longitud de 1 arista en un cubo de un centímetro es 1 centímetro, ¿qué tan largo es este bloque? Explica"* // "If the length of 1 edge of a centimeter cube is 1 centimeter, how long is this block? Explain." (It's 10 centimeters long because it shows 10 blocks put together. Each block is 1 centimeter long.)
- *"Cuando practicamos la suma y la resta usando el valor posicional, utilizamos estas herramientas para mostrar las unidades y las decenas"* // "When we practiced adding and subtracting by place, we used these tools to show ones and tens."
- *"Cuando midamos, los llamaremos 'cubos de un centímetro' y 'herramientas de 10 centímetros' para describir sus longitudes"* // "When we measure we will call them centimeter cubes and 10-centimeter tools to describe their lengths."

## Activity 1

20 min

Longitud en centímetros

### Standards

Addressing **2.MD.A.1**

The purpose of this activity is for students to transition from expressing the length of objects as a count of physical length units (for example, 12 cubes) to expressing the length of objects using a standard unit (for example, 12 centimeters). Students use centimeter cubes and 10-centimeter tools (base-ten blocks) to measure the length of an

earthworm. Throughout the activity, students make connections to place value and describe the convenience of different types of tools based on their length (MP5).

## Access for Students with Disabilities

*Action and Expression: Internalize Executive Functions.* Check for understanding by inviting students to rephrase directions in their own words. Keep a display of the objectives visible throughout the activity.
*Supports accessibility for: Memory, Organization*

## Required Materials

**Materials to Gather**

- Base-ten blocks: Activity 1

**Materials to Copy**

- Length in Centimeters Handout (1 copy for every 1 students): Activity 1

## Student Task Statement

1. Mide la longitud del dragón barbudo usando los cubos de un centímetro. Un centímetro es una unidad métrica de longitud.

   El dragón barbudo mide _____ cubos de un centímetro de largo.

2. Mide la longitud del dragón barbudo usando la herramienta de 10 centímetros.

   El dragón barbudo mide _____ herramientas de 10 centímetros de largo.

3. ¿Cuántos centímetros de largo mide el dragón barbudo?

   El dragón barbudo mide _____ centímetros de largo.

## Student Response

1. 24
2. 2 or 3
3. 24

## Launch

- Groups of 2
- Give centimeter cubes and 10-centimeter tools to each group.
- Give each student a copy of the bearded dragon.
- *"Ayer medimos la longitud de la iguana de Priya. Una iguana es un reptil. ¿Qué saben sobre los reptiles?"* // "Yesterday we measured the length of Priya's iguana. An iguana is a reptile. What do you know about reptiles?"
- Share responses.
- Display the image.
- *"Este es el dibujo de un dragón barbudo. Como las iguanas, los dragones barbudos son un tipo de reptil que con frecuencia se tiene como mascota"* // "This is a drawing of a bearded dragon. Like iguanas, bearded dragons are a kind of reptile that are often kept as pets."

## Activity

- *"Midan la longitud del dragón barbudo usando los cubos de un centímetro. Luego, usen la herramienta de 10 centímetros para medir la longitud"* // "Measure the length of the bearded dragon using the centimeter cubes. Then use the 10-centimeter tool to measure the length."
- 10 minutes: partner work time
- Monitor for students who answer the last question by using:

- Only centimeter cubes.
- Only 10-centimeter tools.
- A combination of 10-cm tools and centimeter cubes.

### Activity Synthesis

- Share and display student measurements for the last problem.
- As needed, select previously identified students to demonstrate their responses to the following discussion questions.
- *"¿Cómo pueden mostrar, usando sólo cubos de un centímetro, que el dragón barbudo mide 24 centímetros de largo?"* // "How can you prove that the bearded dragon is 24 centimeters long with only centimeter cubes?" (Start at one end and line up the cubes until you reach the other end. You can count the cubes because each cube is 1 centimeter long.)
- *"¿Cómo pueden mostrar, usando herramientas de 10 centímetros, que el dragón barbudo mide 24 centímetros de largo?"* // "How can you prove the bearded dragon is 24 cm long with 10-centimeter tools?" (Start at one end with one 10-centimeter tool, then keep lining up more 10-centimeter tools until you go past the end. You can count the first two by 10, then start counting by ones until you get to the block that lines up with the end.)
- *"¿Con cuál herramienta fue más fácil medir la longitud del dragón barbudo?"* // "Which tool was easier to use to measure the length of the bearded dragon?" (I liked using the 10-centimeter tools because you could measure faster without having to use as many blocks. It was easier to count.)

## Activity 2

Midamos con herramientas de 10 centímetros

15 min
PLC Activity

### Standards

Addressing **2.MD.A.1, 2.MD.A.4**

The purpose of this activity is for students to practice measuring and expressing the length of objects in centimeters. Students measure the length of different reptiles and choose whether to use centimeter cubes, 10-centimeter tools, or a combination of the two tools (MP5). Students may also choose whether to compare the length of the day gecko and the

threadsnake by measuring the difference in lengths directly or by measuring each reptile and finding the difference. Students have more opportunities to explore these approaches in future lesson activities.

## Access for English Language Learners

*MLR8 Discussion Supports.* Synthesis: At the appropriate time, give students 2–3 minutes to make sure that both partners can explain how they used their tools to measure and find the difference. Invite groups to rehearse what they will say when they share with the whole class.
*Advances: Speaking, Conversing*

## Required Materials

**Materials to Gather**

- Base-ten blocks: Activity 2

**Materials to Copy**

- Measure with 10-centimeter Tools Handout, Spanish (1 copy for every 1 students): Activity 2

## Student Task Statement

1. Mide la longitud de cada reptil en centímetros.
   a. geco enano jaragua: _____ cm
   b. escinco de lengua azul: _____ cm
   c. tortuga almizclada: _____ cm
   d. serpiente de cuello anillado: _____ cm
2. Compara tus medidas con las de tu compañero.
3. ¿Cuánto más largo es el geco diurno que la serpiente de hilo?

## Student Response

1.
   a. 2
   b. 20
   c. 11
   d. 22
2. Answers vary.
3. 7 cm. Sample response: 16 - 9 = 7

## Launch

- Groups of 2
- Give each student a Reptile Length sheet and access to base-ten blocks.

## Activity

- *"Usen la herramienta que les parezca adecuada para encontrar la longitud de cada reptil. Luego, comparen sus medidas con las de su compañero. Si algunas de las medidas son diferentes, midan juntos de nuevo el reptil para encontrar una medida con la que estén de acuerdo" //* "Use the tools that make sense to you to find the length of each reptile. Then compare your measurements with your partner. If any measurements are different, measure the reptile again together to find a length you agree on."
- *"Luego, decidan cuánto más largo es el geco diurno que la serpiente de hilo. Muestren cómo pensaron. Usen dibujos, números o palabras" //* "Then decide how much longer the day gecko is than the threadsnake. Show your thinking using drawings, numbers, or words."
- 5 minutes: independent work time
- 5 minutes: partner work time
- Monitor for students who use:
  - Centimeter cubes to measure lengths shorter than 10 cm.
  - 10-centimeter tools to measure lengths shorter than 10 cm.

- A combination of centimeter cubes and 10-centimeter tools.
- Only the 10-centimeter tools to measure lengths that are longer than 10 cm.

### Activity Synthesis

- Invite previously identified students to share how they measured a length that was shorter than 10 cm (A or E).
- Invite previously identified students to share how they measured a length longer than 10 cm (B, C, D, or F).

### Advancing Student Thinking

If students use centimeter cubes to measure longer reptile lengths, consider asking:

- *"¿Cómo decidiste cuáles herramientas usar para medir ____?"* // "How did you decide which tools to use to measure the ____?"
- *"¿Cómo podrías usar la herramienta de 10 centímetros para medir el próximo reptil? ¿Cómo podrías usar ambas herramientas para medir?"* // "How could you use the 10-centimeter tool to measure the next reptile? How could you use both tools to measure?"

## Lesson Synthesis

*"Hoy medimos diferentes tipos de reptiles usando los centímetros como unidad de longitud. El centímetro es una unidad pequeña. Vimos que podemos usar los cubos de un centímetro o los bloques de 10 centímetros como herramientas para medir en centímetros"* // "Today, we measured different reptiles using the length unit of centimeters, which is a small unit. We saw that we can use the centimeter cubes or the 10-centimeter blocks as tools to measure centimeters."

*"¿Cómo podrían usar un cubo de un centímetro para mostrarle a alguien qué tan largo es 1 centímetro?"* // "How could you use a centimeter cube to show someone how long 1 centimeter is?"

*"¿Cómo podrían usar una herramienta de 10 centímetros para mostrarle a alguien qué tan largo es 1 centímetro?"* // "How could you use a 10-centimeter tool to show someone how long 1 centimeter is?"

*"¿Qué harían si quisieran mostrarle a alguien qué tan largo es 5 centímetros? ¿Qué usarían?"* // "What if you wanted to show someone how long 5 centimeters is? What would you use?" (I could use 5 centimeter cubes lined up together. I could use the 10-centimeter cube and show them the length of the first 5 cubes.)

*"¿Qué harían si quisieran mostrarle a alguien qué tan largo es 50 centímetros? ¿Qué usarían?"* // "What if you wanted to show someone how long 50 centimeters is? What would you use?" (I'd use 5 10-centimeter tools lined up together.)

### Suggested Centers

- Target Numbers (1–5), Stage 5: Subtract Two-Digit Numbers (Addressing)

- Five in a Row: Addition and Subtraction (1–3) , Stage 6: Add within 100, with Composing (Supporting)

# Cool-down

5 min

Mide con centímetros

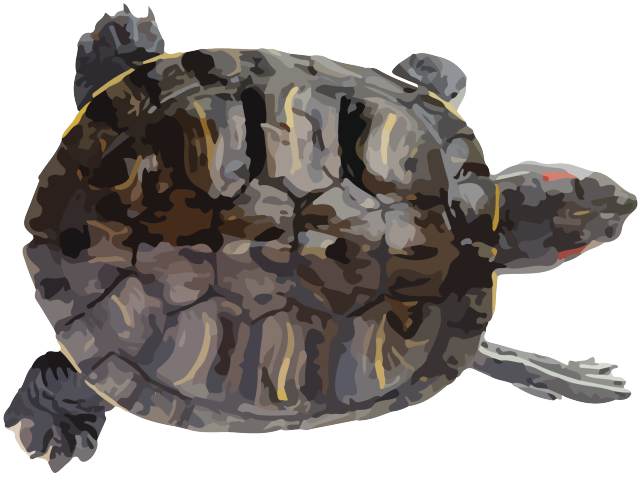
## Standards

Addressing **2.MD.A.1**

## Student Task Statement

Mide la longitud de los reptiles en centímetros.

1. 

2. 

## Student Response

1. 7 cm
2. 13 cm

## Responding to Student Thinking

Students find lengths other than actual lengths.

Next Day Supports
During the *Launch* of the next day's activity, have students work in pairs to compare measurements and techniques.