Unit 7, Lesson 7

Mismo perímetro, figuras diferentes

Standards

Addressing	**3.MD.D.8, 3.NBT.A.2**
Building Toward	**3.MD.D.8**

Instructional Routines

- True or False?

Goals

- Determine and draw examples of different shapes with the same perimeter.

Student Facing Learning Goals

Aprendamos sobre figuras que tienen el mismo perímetro.

Lesson Purpose

The purpose of this lesson is for students to practice finding the perimeter of shapes and to understand that many different shapes can have the same perimeter.

Narrative

In previous lessons, students learned they can find the perimeter of a shape by adding the lengths of the sides. In this lesson, students match shapes with the same perimeter and draw different shapes that have the same perimeter.

Access for Students with Disabilities

- Action and Expression

Access for English Learners

- MLR7

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

As students worked in their small groups today, whose ideas were heard, valued, and accepted? How can you adjust the group structure tomorrow to ensure that each student's ideas are a part of the collective learning?

Warm-up

10 min

Verdadero o falso: Sumas de cuatro números

Standards

Addressing	**3.NBT.A.2**

Instructional Routines

- True or False?

Building Toward **3.MD.D.8**

The purpose of this *True or False* is to elicit strategies and understandings students have for adding multi-digit numbers. It prompts students to rely on their understanding of the properties of operations and place value. The strategies used here will be helpful as students find the perimeter of shapes with repeated side lengths later in the lesson.

Student Task Statement

En cada caso, decide si la afirmación es verdadera o falsa. Prepárate para explicar tu razonamiento.

- $123 + 75 + 123 + 75 = 100 + 100 + 70 + 70 + 5 + 5 + 3 + 3$
- $123 + 75 + 123 + 75 = (2 \times 123) + (2 \times 75)$
- $123 + 75 + 123 + 75 = 208 + 208$
- $123 + 75 + 123 + 75 = 246 + 150$

Student Response

- False: The expression on the right side is missing 2 twenties.
- True: On both sides there are 2 groups of 123 and 2 groups of 75.
- False: I know that $125 + 75 = 200$, so $123 + 75$ is less than 200.
- True: $75 + 75 = 150$ and $123 + 123 = 246$

Launch

- Display one equation.
- *"Hagan una señal cuando sepan si la ecuación es verdadera o no, y puedan explicar cómo lo saben"* // "Give me a signal when you know whether the equation is true and can explain how you know."
- 1 minute: quiet think time

Activity

- Share and record answers and strategy.
- Repeat with each equation.

Activity Synthesis

- *"¿Cómo pueden explicar su respuesta sin encontrar el valor de ambos lados?"* // "How can you explain your answer without finding the value of both sides?"

Activity 1

15 min

Todo tipo de figuras

Standards

Addressing **3.MD.D.8**

The purpose of this activity is for students to understand that many different shapes can have the same perimeter. Students start to focus more specifically on shapes with repeated side lengths, so they can leverage the efficient addition strategies elicited in the *Warm-up* (MP7).

Access for English Language Learners

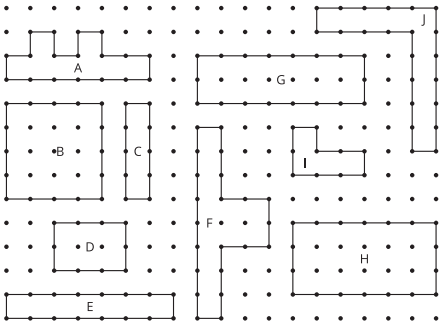
MLR7 Compare and Connect. Synthesis: After all strategies have been presented, lead a discussion comparing, contrasting, and connecting the different approaches for finding the perimeter of one of the shapes. Ask: *"¿Por qué se obtiene el mismo perímetro al usar cada método?"* // "How did the same perimeter show up in each method?" and *"¿Por qué las distintas estrategias nos llevan al mismo resultado?"* // "Why did the different approaches lead to the same outcome?"
Advances: Representing, Conversing

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 differing approaches.
Supports accessibility for: Memory, Visual-Spatial Processing

Student Task Statement

1. Escoge 3 de las figuras de la A a la J. Encuentra el perímetro de cada figura. Explica o muestra tu razonamiento.
2. Encuentra una figura que tenga el mismo perímetro que una de las 3 figuras que escogiste antes.



Student Response

1. Sample responses:
   - Shape E: $7 + 7 = 14$ then $14 + 2 = 16$
   - Shape F: There are 2 sides that are 3 units, 2 sides that are 1 unit, 3 sides that are 2 units, and 1 side that is 8 units.
     $(2 \times 3) + (2 \times 1) + (3 \times 2) + 8$ is $6 + 2 + 6 + 8$, which is 22.
2. Shapes and their perimeter:
   - A, G, and H (18 units)
   - B and E (16 units)
   - C, D, and I (10 units)
   - F and J (22 units)

Launch

- Groups of 2
- Display the shapes.
- *"¿Cuál figura piensan que tiene el perímetro más largo y cuál tiene el más corto?"* // "Which shape do you think has the longest perimeter and which has the shortest?" (I think shape J has the longest—it looks like a really long shape. I think D has the shortest. It is small.)
- 1–2 minutes: partner discussion
- Share responses.

Activity

- *"Con su compañero, encuentren el perímetro de 3 figuras"* // "Work with your partner to find the perimeter of 3 shapes."
- *"Después, individualmente, encuentren al menos una figura que tenga el mismo perímetro que una de las figuras que escogieron"* // "Then work independently to find at least one shape that has the same perimeter as a shape you chose."
- 5 minutes: partner work time
- 2–3 minutes: independent work time
- Monitor for students who use sides of the same length or symmetry of the shape to find the perimeter in efficient ways.

Activity Synthesis

- Invite students to share a variety of methods for finding the perimeter of the different shapes. Ask students who found the perimeter of shapes in efficient ways to share their reasoning.
- Consider asking: *"¿Alguien encontró el perímetro de otra manera?"* // "Did anyone find the perimeter in a different way?"
- *"Las figuras A y G se ven muy diferentes, pero sus perímetros tienen la misma longitud. ¿Cómo es posible?"* // "Shapes A and G look very different but

have the same length for their perimeter. How could that be?" (The shapes may look different but the distance around each is the same number of units. Different shapes can have the same perimeter.)

Advancing Student Thinking

If students count the individual units around each shape, consider asking:

- *"¿Cómo encontraste el perímetro de esta figura?"* // "How did you find the perimeter of this shape?"
- *"¿Qué otras estrategias puedes usar para no tener que contar las unidades una por una?"* // "What other strategies could you use so you wouldn't have to count one unit at a time?"

Activity 2

20 min

Dibújala tú mismo

Standards

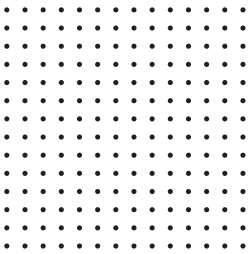
Addressing **3.MD.D.8**

The purpose of this activity is for students to draw shapes with specific perimeters. Students may create any shape that uses horizontal and vertical lines. Since diagonal lines that connect the dots are not one length unit, students cannot find the perimeter of shapes that include diagonal sides. Encourage students to be creative in drawing their shapes to reinforce the idea that different shapes can have the same perimeter.

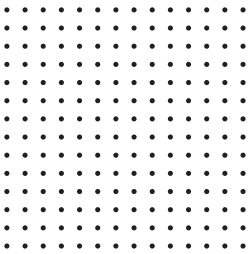
Student Task Statement

1. En cada caso, dibuja 2 figuras que tengan ese perímetro.

12 unidades



26 unidades



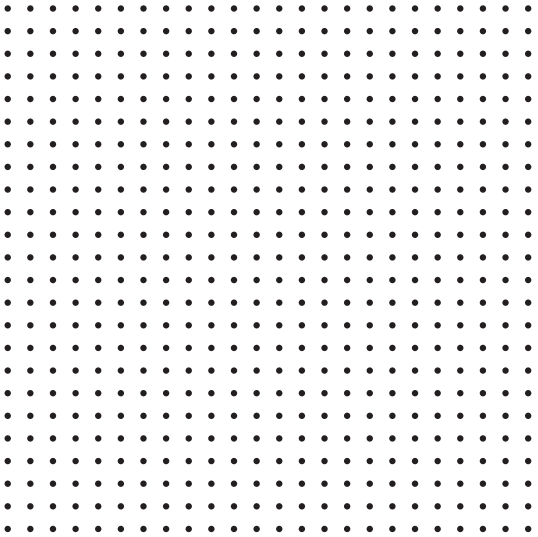
48 unidades

Launch

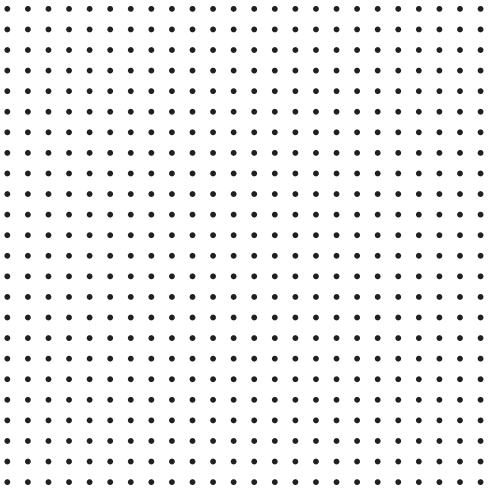
- Groups of 2

Activity

- *"Individualmente, dibujen dos figuras que tengan cada uno de los perímetros. Prepárense para explicar cómo dibujaron sus figuras"* // "Work independently to draw two shapes that have each perimeter. Be prepared to explain how you drew your shapes."
- 8–10 minutes: independent work time
- Monitor for students who:
  - Draw shapes other than rectangles or squares.
  - Can explain their method for drawing shapes with a specific perimeter, such as drawing sides of the same length first or drawing sides one at a time around the shape.
- *"Compartan con su compañero las figuras que dibujaron. Piensen en qué se parecen y en qué son*



2. a. Con tu compañero, escoge un perímetro en unidades. Después dibuja una figura que tenga ese perímetro y no se la muestres a tu compañero.



   b. Compartan las figuras que dibujaron y discutan en qué se parecen y en qué son diferentes.

Student Response

1. Answers vary.
2. Answers vary.

diferentes sus figuras. Luego, trabajen juntos en el último problema" // "Share the shapes you drew with your partner. Think about how your shapes are alike and how they are different. Then work on the last problem together."

- 5 minutes: partner work time

Activity Synthesis

- Select previously identified students to share their strategies for drawing shapes for one of the perimeters in the first problem.
- *"¿Qué perímetro escogieron con su compañero para dibujar la figura? ¿Por qué escogieron ese número?"* // "What perimeter did you and your partner choose to draw a shape for? Why did you pick that number?"

Lesson Synthesis

"Hoy aprendimos que figuras diferentes pueden tener el mismo perímetro" // "Today we learned that different shapes

can have the same perimeter."

"¿Cómo le explicarían a alguien que esto es posible?" // "How would you explain to someone how this is possible?" (The perimeter is the total length of all the sides of a shape, and there are different ways to add numbers to get the same sum.)

Consider using a string of interconnected paper clips to form different shapes. The shapes would have the same perimeter because the length of the string (or the number of paper clips) hasn't changed.

Suggested Centers

- Can You Draw It? (1–5), Stage 3: Grade 3 Shapes (Addressing)
- How Are They the Same? (1–5), Stage 3: Grade 3 Shapes (Addressing)

Cool-down

5 min

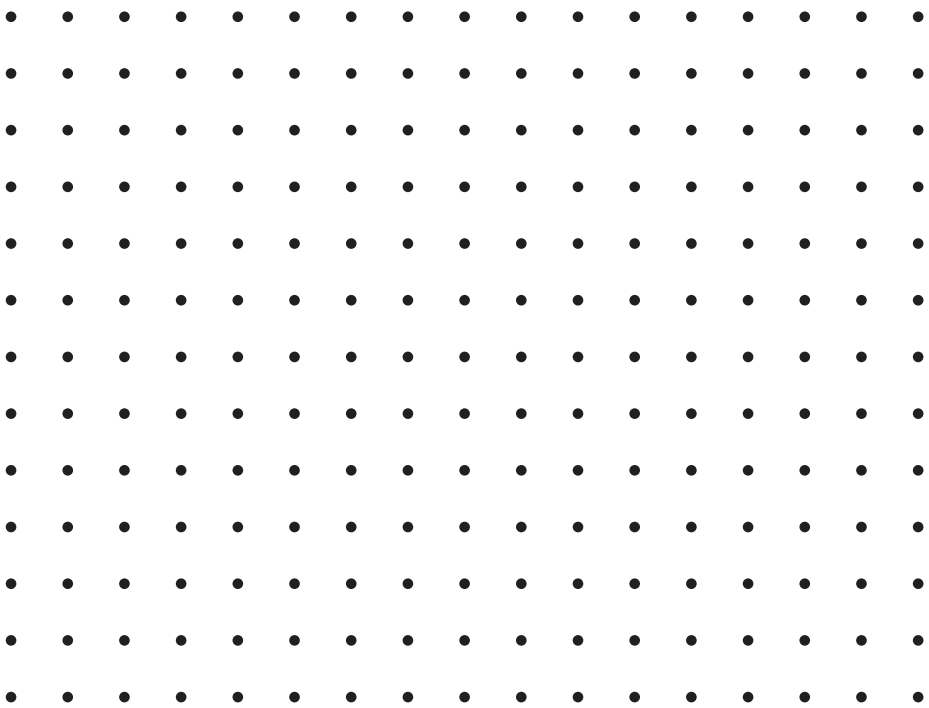
Haz tus propias figuras

Standards

Addressing **3.MD.D.8**

Student Task Statement

Dibuja 2 figuras diferentes que tengan un perímetro de 32 unidades.



Student Response

Answers vary.

Responding to Student Thinking

Students do not draw shapes with perimeters of 32 units.

Next Day Supports
Before the *Warm-up*, pass back the *Cool-down* and work in small groups to make corrections.