

# Lesson 3: De patrones visuales a patrones numéricos

## Standards Alignments

Building On	4.NBT.A.1, 4.OA.B.4
Addressing	4.OA.C.5
Building Towards	4.NBT.B.5

## Teacher-facing Learning Goals

- Analyze patterns represented visually and numerically.
- Use numbers, words, and the idea of factors and multiples to describe and extend patterns in the features of rectangles.

## Student-facing Learning Goals

- Veamos qué patrones numéricos podemos escribir para describir patrones de rectángulos.

## Lesson Purpose

The purpose of this lesson is for students to analyze, describe, and extend numerical patterns that follow a rule.

Previously, students explored growing and repeating patterns and reasoned about the patterns using words, numbers, and operations. In this lesson, students investigate patterns in a geometric context and explore how the side lengths, area, perimeter, and other features of a rectangle change when the rectangle changes by a rule. In doing so, students practice looking for and making use of structure (MP7).

Students also practice reasoning quantitatively and abstractly (MP2) as they interpret the values in number sequences that represent geometric features of rectangles, and vice versa. (For example, 6, 8, 10, 12, . . . may represent the area, in square centimeters, of a series of rectangles whose width is 2 centimeters and whose length grows by 1 centimeter each time.)

The second activity in this lesson is optional as it allows students more time to work with the ideas from the first activity.

## Access for:



### Students with Disabilities

- Representation (Activity 1)



### English Learners

- MLR2 (Activity 3)

## Instructional Routines

MLR1 Stronger and Clearer Each Time (Activity 2), MLR3 Clarify, Critique, Correct (Activity 1), Number Talk (Warm-up)

## Materials to Gather

- Graph paper: Activity 1

## Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	20 min
Activity 3	15 min
Lesson Synthesis	10 min
Cool-down	5 min

## Teacher Reflection Question

Identify who has been sharing their ideas in class lately. Make a note of students whose ideas have not been shared and look for an opportunity for them to share their thinking in tomorrow's lesson.

## Cool-down (to be completed at the end of the lesson)

 5 min

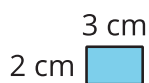
Otra colección de rectángulos

### Standards Alignments

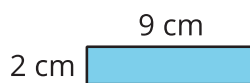
Addressing 4.OA.C.5

### Student-facing Task Statement

Estos son los pasos 1 y 3 de un patrón de rectángulos. En este patrón, la longitud de un lado crece 3 centímetros cada vez.



paso 1



paso 2

paso 3

paso 4

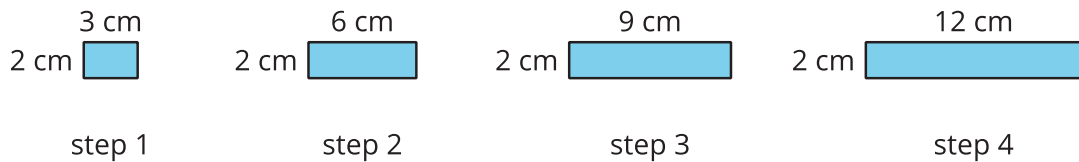
1. Dibuja los rectángulos que hacen falta en los pasos 2 y 4. Marca los lados con sus longitudes.
2. Escribe un patrón numérico que represente el patrón de rectángulos. Explica la forma en la

que tu patrón numérico representa los rectángulos.

3. Si el patrón continúa, ¿el número 50 podría representar la longitud de un lado o el área de uno de los rectángulos? Si así es, ¿en cuál paso? Si no, ¿por qué no? Explica o muestra cómo razonaste.

### Student Responses

1. Completed drawing:



2. Sample responses:

- Side length: 3, 6, 9, 12, 15, 18
- Area: 6, 12, 18, 24, 30, 36
- Perimeter: 10, 16, 22, 28, 34, 40

3. Sample response: No, 50 is not a multiple of 3 so it can't represent the side length of a rectangle. It is not a multiple of 6, so it cannot represent the area of a rectangle.