Materials List:
- Multiply by 7 Pattern Sheet
  - Whiteboards
    - Rylers
    - Scissors
      - Strng
- Problem Sets Lessons 25-26
  - Circle templates

Eureka Math

3rd Grade
Module 7
Lesson 26

At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

Directions for customizing presentations are available on the next slide.

Customize this Slideshow
Reflecting your Teaching Style and Learning Needs of Your Students

➤ When the Google Slides presentation is opened, it will look like Screen A.
➤ Click on the "pop-out" button in the upper right hand corner to change the view.
➤ The view now looks like Screen B.
➤ Within Google Slides (not Chrome), choose FILE.
➤ Choose MAKE A COPY and rename your presentation.
➤ Google Slides will open your renamed presentation.
➤ It is now editable & housed in MY DRIVE.
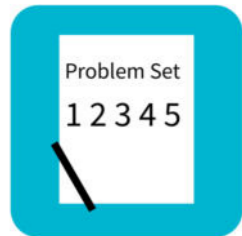
Icons

RDW — Read, Draw, Write

Learning Target

Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share

Whole Class

Individual

Partner

Small Group

Small Group Time

Lesson 26

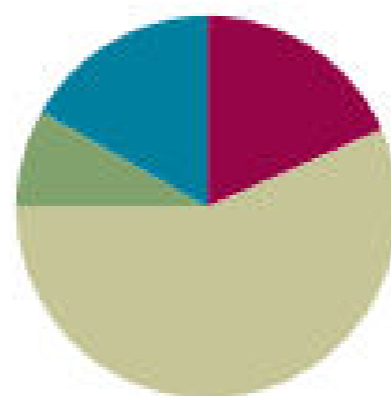Objective: Use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.

Suggested Lesson Structure

■ Fluency Practice	(11 minutes)	
■ Application Problem	(5 minutes)	
■ Concept Development	(34 minutes)	
■ Student Debrief	(10 minutes)	
Total Time	**(60 minutes)**	

I can use rectangles to draw a robot with specified perimeter measurements, and reason about the different areas that may be produced.

Fluency Practice

Multiply by 7 (5 minutes)

Let's skip-count up by sevens. I'll raise a finger for each seven.

7x7= ___

Let's skip-count up by sevens starting at 35. Why is 35 a good place to start?

Let's see how we can skip-count down to find the answer, too. Start at 70 with 10 fingers, 1 for each seven.

Continue with the following sequence:
9 × 7
6 × 7
8 × 7

Fluency Practice

Multiply by 7 Sprint (2 minutes)

Multiply.

7 x 1 = _____   7 x 2 = _____   7 x 3 = _____   7 x 4 = _____

7 x 5 = _____   7 x 6 = _____   7 x 7 = _____   7 x 8 = _____

7 x 9 = _____   7 x 10 = _____   7 x 5 = _____   7 x 6 = _____

7 x 5 = _____   7 x 7 = _____   7 x 5 = _____   7 x 8 = _____

7 x 5 = _____   7 x 9 = _____   7 x 5 = _____   7 x 10 = _____

7 x 6 = _____   7 x 5 = _____   7 x 6 = _____   7 x 7 = _____

7 x 6 = _____   7 x 8 = _____   7 x 6 = _____   7 x 9 = _____

Fluency Practice

Image A

P = 80 cm

___ cm ÷ ___ = ___ cm

Each side of the triangle is the same length. The perimeter of this shape is 80 cm. Find the side lengths of each triangle by filling in the missing numbers.

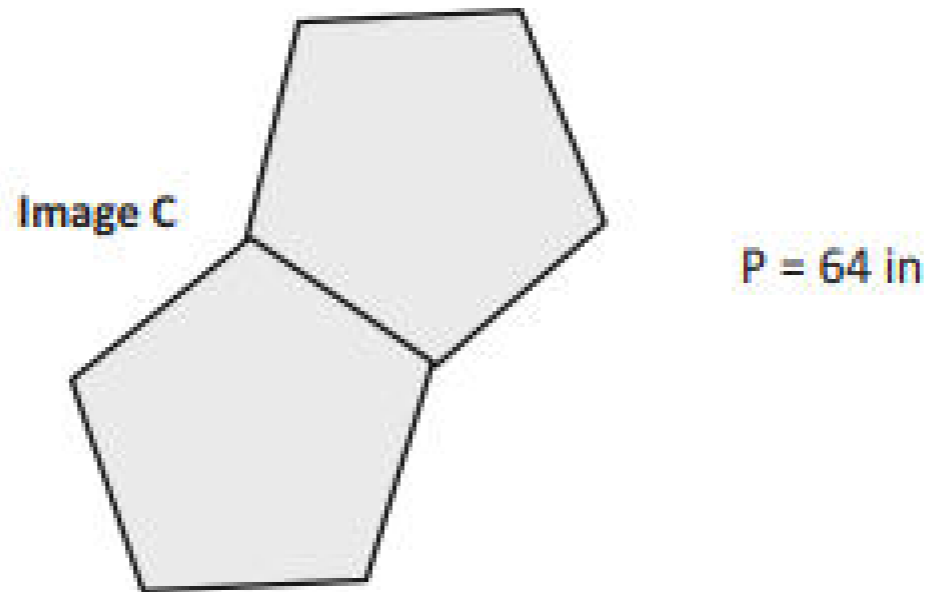80 cm ÷ 8 = 10 cm

Fluency Practice

Image B

P = 90 m

___ m ÷ ___ = ___ m

The perimeter of this shape is 90 m. Find the side lengths of each square by filling in the missing numbers.

90 m ÷ 10 = 9 m

Fluency Practice

Image C

P = 64 in

___ in ÷ ___ = ___ in

The perimeter of this shape is 64 in. Find the side lengths of each square by filling in the missing numbers.

64 in ÷ 8 = 8 in

Drew makes rectangular shoes for his robot. Each shoe has whole number side lengths and an area of 7 square centimeters. What is the total perimeter of both shoes? Is there more than one answer? Why or why not?

Area: 7 sq cm

$1 \times 7 = 7$

7 cm

[rectangle] 1 cm

$P = 7cm + 1cm + 7cm + 1cm$

$P = 8cm + 8cm$

$P = 16cm$

Perimeter of 2 shoes $= 16cm + 16cm$

$= 32cm$

The total perimeter for both shoes is 32cm. There is 1 possible answer because we can only build 1 rectangle with an area of 7 sq. cm.

Concept Development

(35 minutes)

Today, we will use the map you sketched and labeled on yesterday's Problem Set to measure and cut out the items in your robot's environment. Tell your partner the first step in making circular items.

Yes, first you'll measure string using a ruler and cut it to the size of each circular item.

What three measurements do you need to mark and cut using your strings?

25, 30, and 20 centimeters

Once you have measured and cut your string, it'll be challenging to trace it into circles. I have made a template of circles to help you.

Concept Development

Part 1: Create a robot environment

What do you notice about the number of circles on your sheet?
There are six circles. But we only need three.

Once you have measured and cut your three strings, match them to the circles on the template you will use to help you trace. Remember that with string, we cannot always be exact. Start measuring now.

Which circles do we need to cut out and trace to make the circles in our robot's environment?
Circles A, C, and D

Go ahead and cut, trace, and glue all the pieces to make your robot's environment.

Circles (A–F) Template
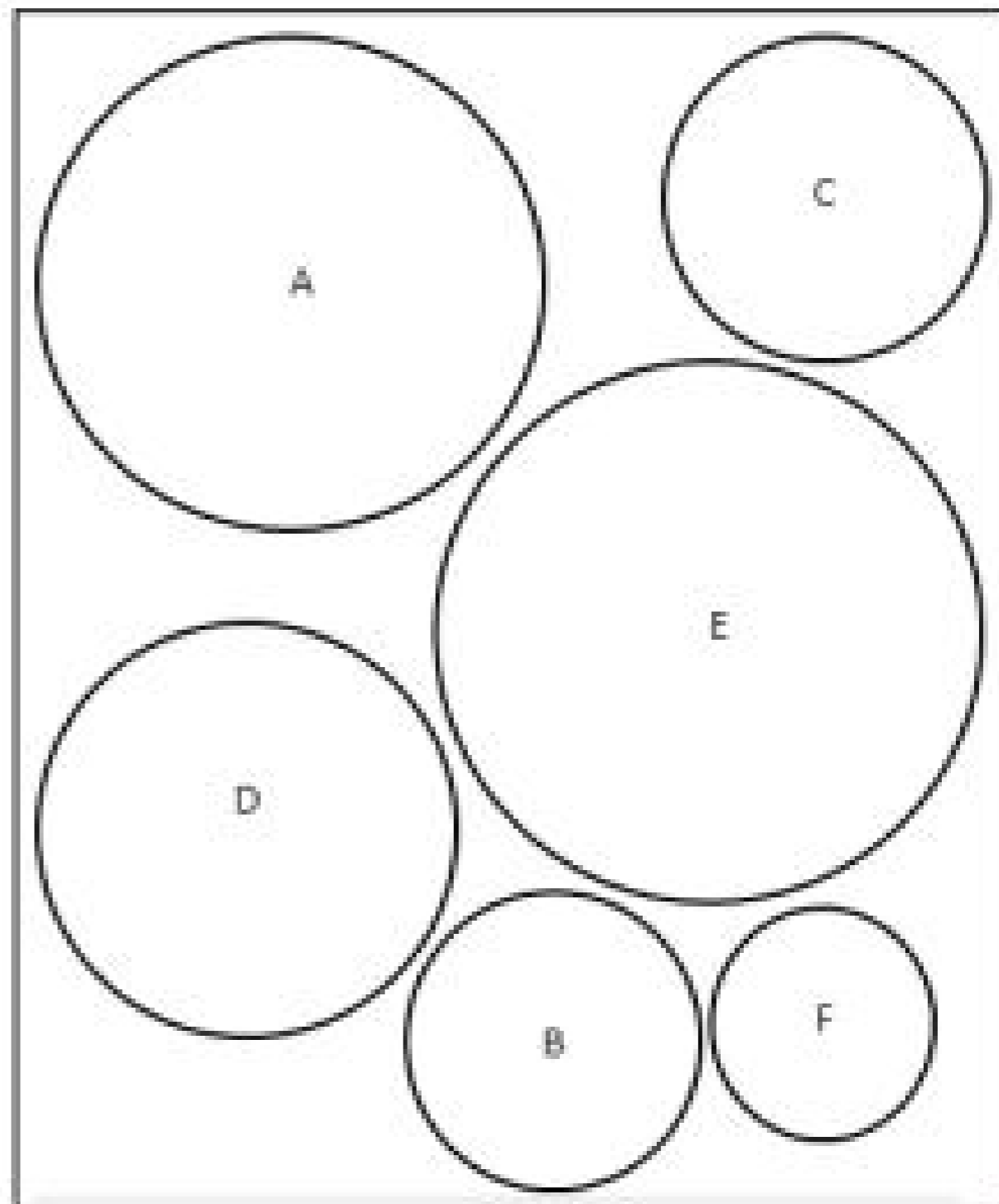
Concept Development

Part 2: Analyze the line plot.

Get out your Lesson 26 Problem Set.

Find the area of your robot's rectangular body. Let's plot everyone's data on our number lines.
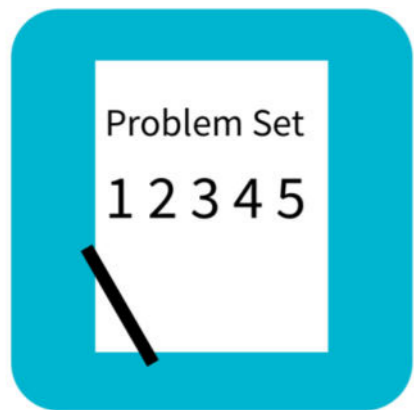
Concept Development

Each robot's body has a perimeter of 28 centimeters. Why do you think we have so many different area measurements for the same perimeter?

What does this tell you about the relationship between area and perimeter?

Take some time to record your answers to Problem 1 (a) and (b).

Problem Set (30 minutes)

Do your personal best to complete Problems 2, 3, and 4 within the allotted 10 minutes.

2. Measure and calculate the perimeter of your construction paper in inches. Show your work below.

3. Sketch and label two shapes with the same perimeter from the robot's environment. What do you notice about the way they look?
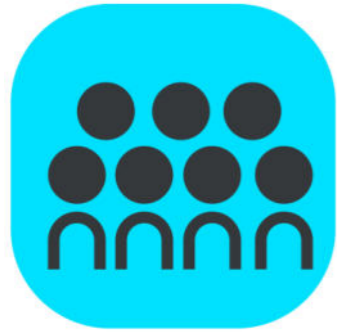
Debrief (10 minutes)

- (Share student calculations from Problem 2.) Why do you think the problem asked to measure the perimeter in inches instead of centimeters?
- (Share student sketches in Problem 3.) Discuss that many different shapes can have the same perimeter. Can a triangle and a hexagon have the same perimeter?
- Share your responses to Problem 4.
- Each piece of art looks unique even though you each used the same perimeters. Through this experience, what did you learn about the relationship between area and perimeter?

Exit Ticket (3 minutes)

Name _____   Date _____

1. Use string to help you sketch a circle with a perimeter of about 15 centimeters.

2. Estimate to draw a rectangle with a perimeter of 15 centimeters. Label the width and length.