Common Core
Aligned

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Mystery Perimeters
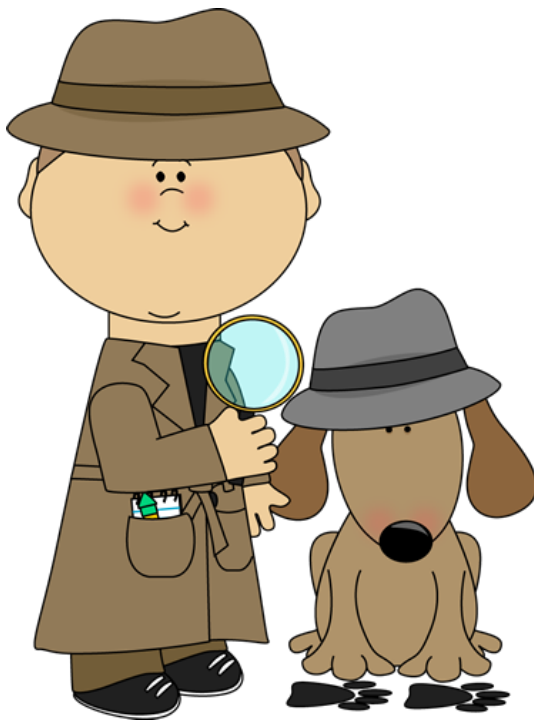
Finding Unknown Side Lengths
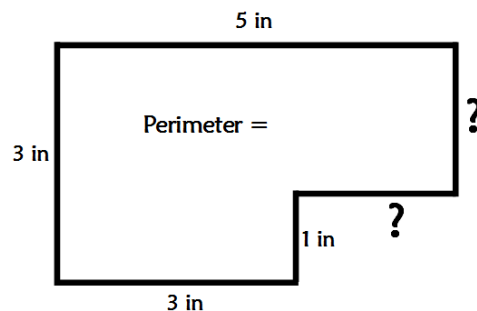
5 in

Perimeter =   ?

3 in

1 in   ?

3 in

Math Content
3.MD.D.8

Mystery Perimeters

The Mystery Perimeters lesson is a sample from my complete ebook, *Exploring Perimeter*. All of the lessons in that book follow the same format with a detailed teacher information page followed by ready-to-use printables and activity pages. This lesson uses inches for measurement, but the complete lesson in *Exploring Perimeter* also includes a metric variation that uses centimeters. Mystery Perimeters is Common Core Aligned for 3rd grade, and it also makes a great review for grades 4 and 5, especially for those students who need a concrete, hands-on lesson to understand how to find unknown polygon side lengths. To preview the entire book, click the cover to visit my TeachersPayTeachers store. I hope you enjoy it! ~ Laura Candler
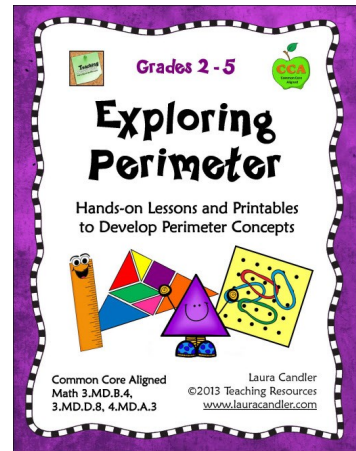
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Exploring Perimeter

Mystery Perimeters

Targeted Skill
Determining the lengths of unlabeled sides of irregular polygons in order to calculate perimeter

Overview
The Mystery Perimeters lesson involves using logical reasoning and/or measurement to find out the lengths of irregular polygons.

Directions
1. Start with the **Mystery Perimeters Demo** and display it on an interactive whiteboard or overhead projector. Read the information at the top and ask students how they might be able to figure out the lengths of the missing sides. Depending on your students, they may need to use square tiles or an inch grid overlay to figure it out. (Create a transparent overlay using the pattern on page 8.) Others may see that you can divide the irregular shape into two rectangles and use logical reasoning to find the lengths of the missing sides.
2. To check answers, display the **Mystery Perimeters Demo Answers**. Allow time to discuss various strategies for solving the problem.
3. Assign the **Mystery Perimeters** worksheet on page 6 or 7. The copy with the grid is helpful when students are having difficulty with the concept. You can also them to work with a partner and discuss strategies.

Materials
- Mystery Perimeter Demos (plain and with the grid)
- Transparent grid overlay (p. 8)
- Square inch tiles
- Rulers
- Mystery Perimeters worksheet (p 6 or 7)

Laura's Tips

Finding the missing lengths of sides of irregular polygons is very challenging. Start with the inch version of this activity because it's much easier than the centimeter version. Most elementary students will need to use manipulatives to figure out the lengths of each side. Remind them that they can use their rulers to measure each side, too.

Supporting Activity
Floor Tile Perimeters - Use square floor tiles to teach perimeter. Create a large irregular polygon made of 2 rectangles like the ones in this lesson. Mark the dimensions of a few of the sides using the length of one tile as a unit. Show the polygon to your students and ask them to figure out the missing lengths. Place polygon on the floor and line up with the tiles to check.

Mystery Perimeters Answers
- #1 - S = 2 in and 3 in, P = 18 in
- #2 - S = 4 in and 4 in, P = 20 in

Mystery Perimeters Demo

Detective Dianne discovered the sketches below and needs to find the perimeter of each polygon. However, some of the dimensions are not labeled. Can you help her find the missing dimensions? You may use logical reasoning or manipulatives such as a ruler or square inch tiles to help you solve the mystery. Then calculate the total perimeter of each polygon and write it in the center of the shape.

Shape 1:

5 in

2 in

?

Perimeter = _____

?

1 in

3 in

Shape 2:

5 in

2 in
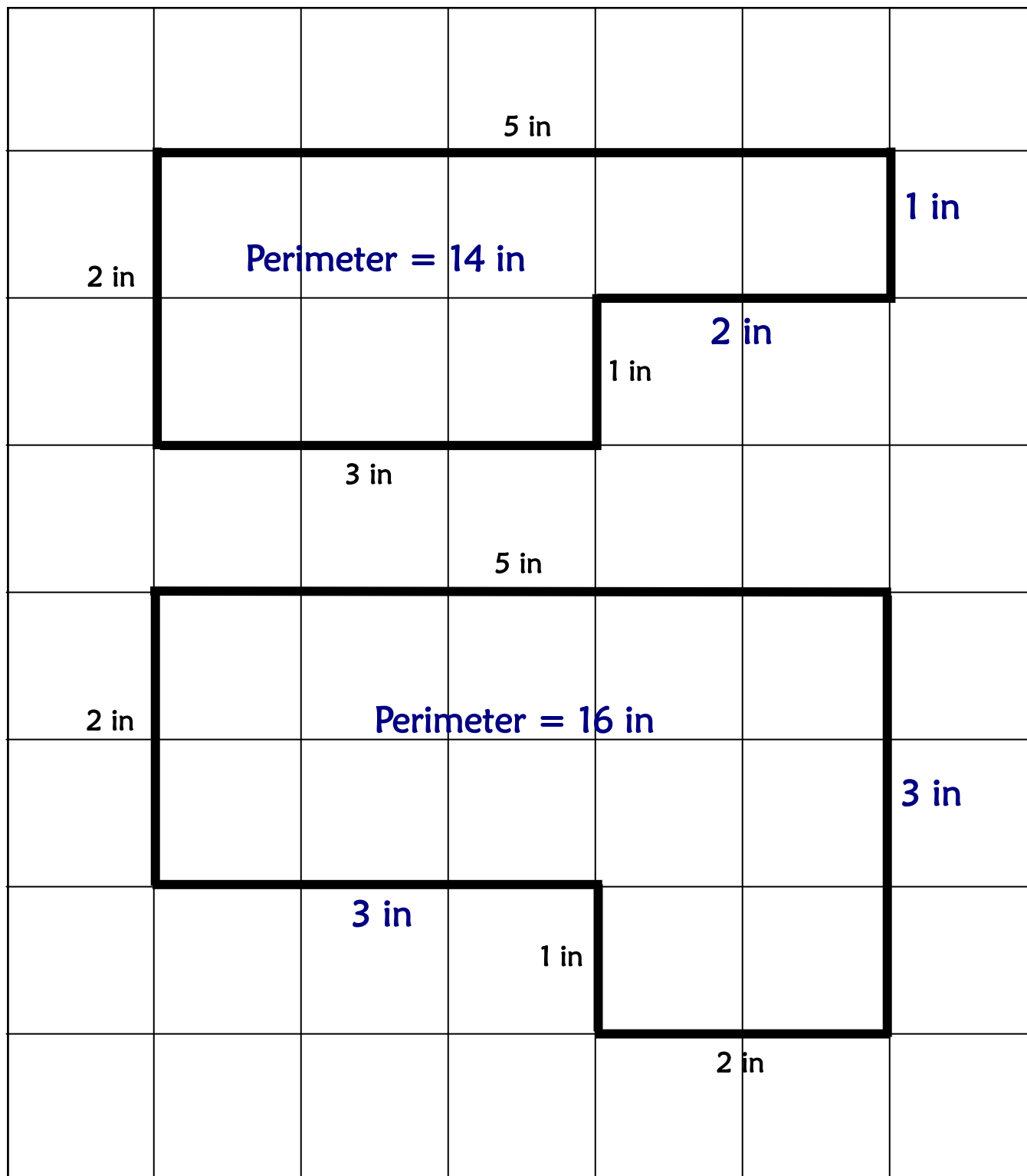
Perimeter = _____

?

?

1 in
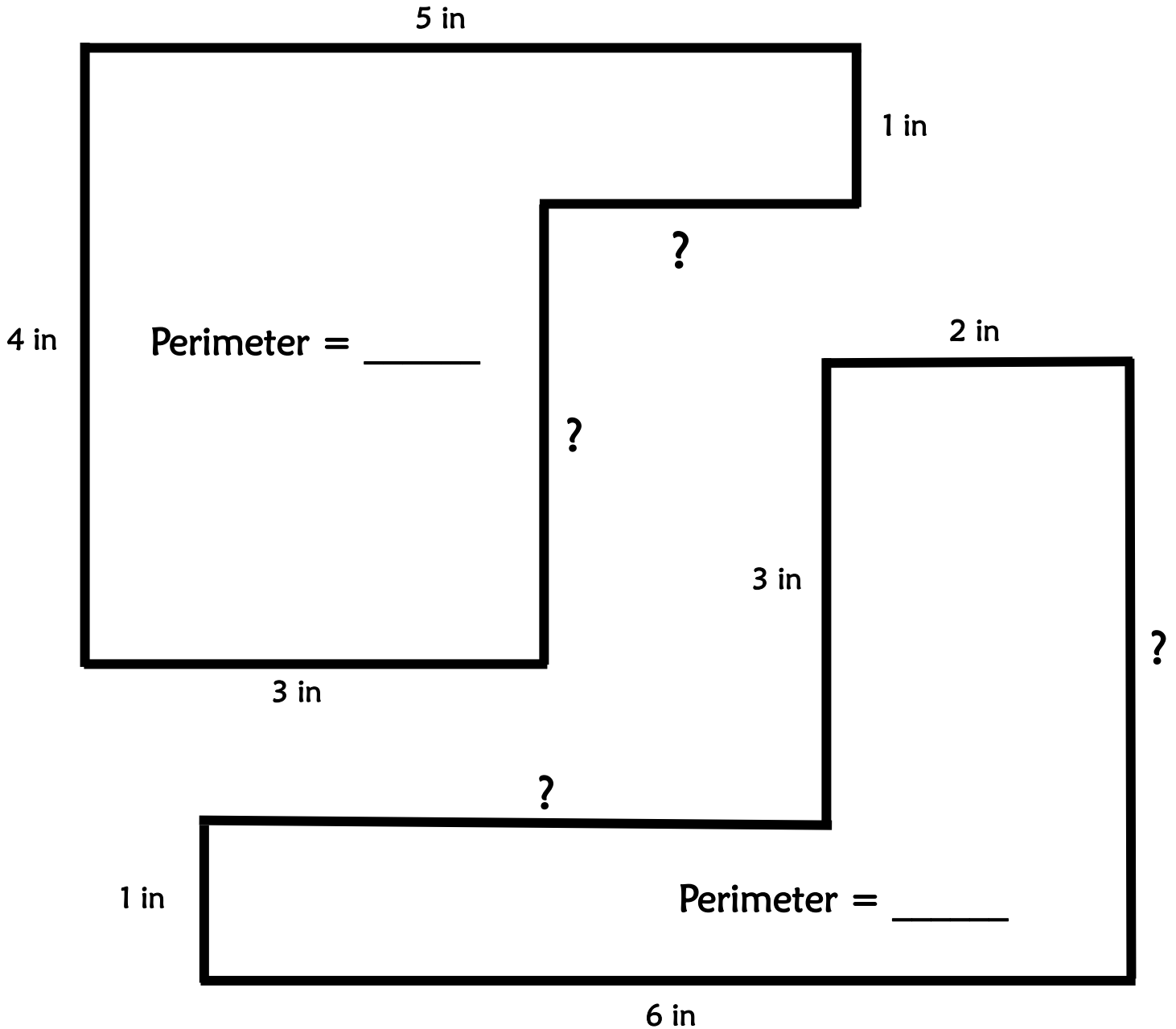
2 in

Mystery Perimeters Demo Answers

Detective Dianne discovered the sketches below and needs to find the perimeter of each polygon. However, some of the dimensions are not labeled. Can you help her find the missing dimensions? You may use logical reasoning or manipulatives such as a ruler or square inch tiles to help you solve the mystery. Then calculate the total perimeter of each polygon and write it in the center of the shape.

5 in

1 in

2 in

Perimeter = 14 in

2 in

1 in

1 in

3 in

5 in

2 in

Perimeter = 16 in

3 in

3 in

1 in
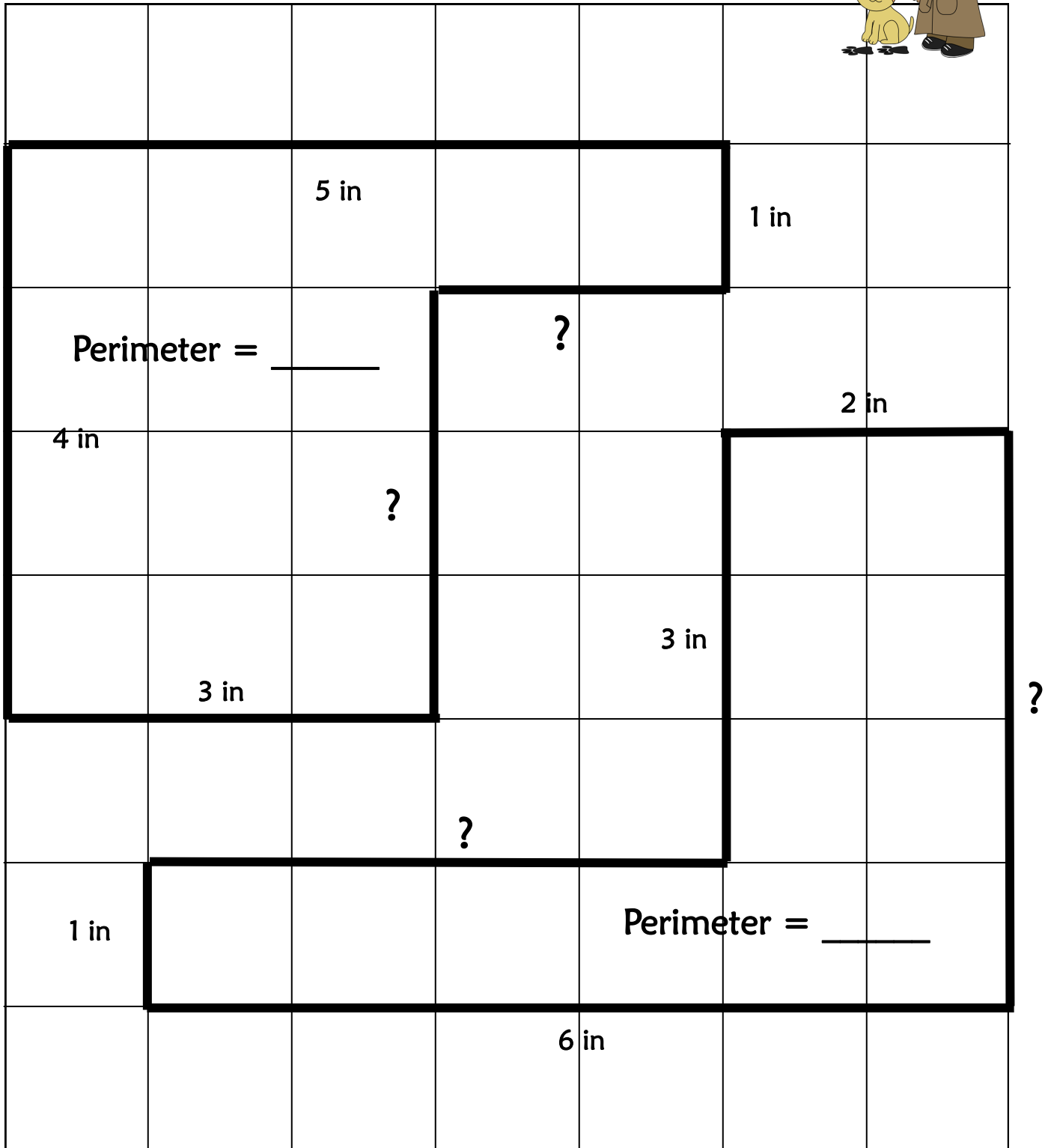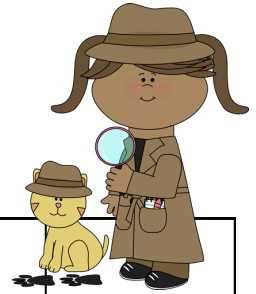
2 in

Mystery Perimeters

Name _____

Detective Dianne discovered the sketches below and needs to find the perimeter of each polygon. However, some of the dimensions are not labeled. Can you help her find the missing dimensions? You may use logical reasoning or manipulatives such as a ruler or square inch tiles to help you solve the mystery. Then calculate the total perimeter of each polygon and write it in the center of the shape.

5 in

1 in

?

4 in

Perimeter = _____

?

2 in

3 in

?

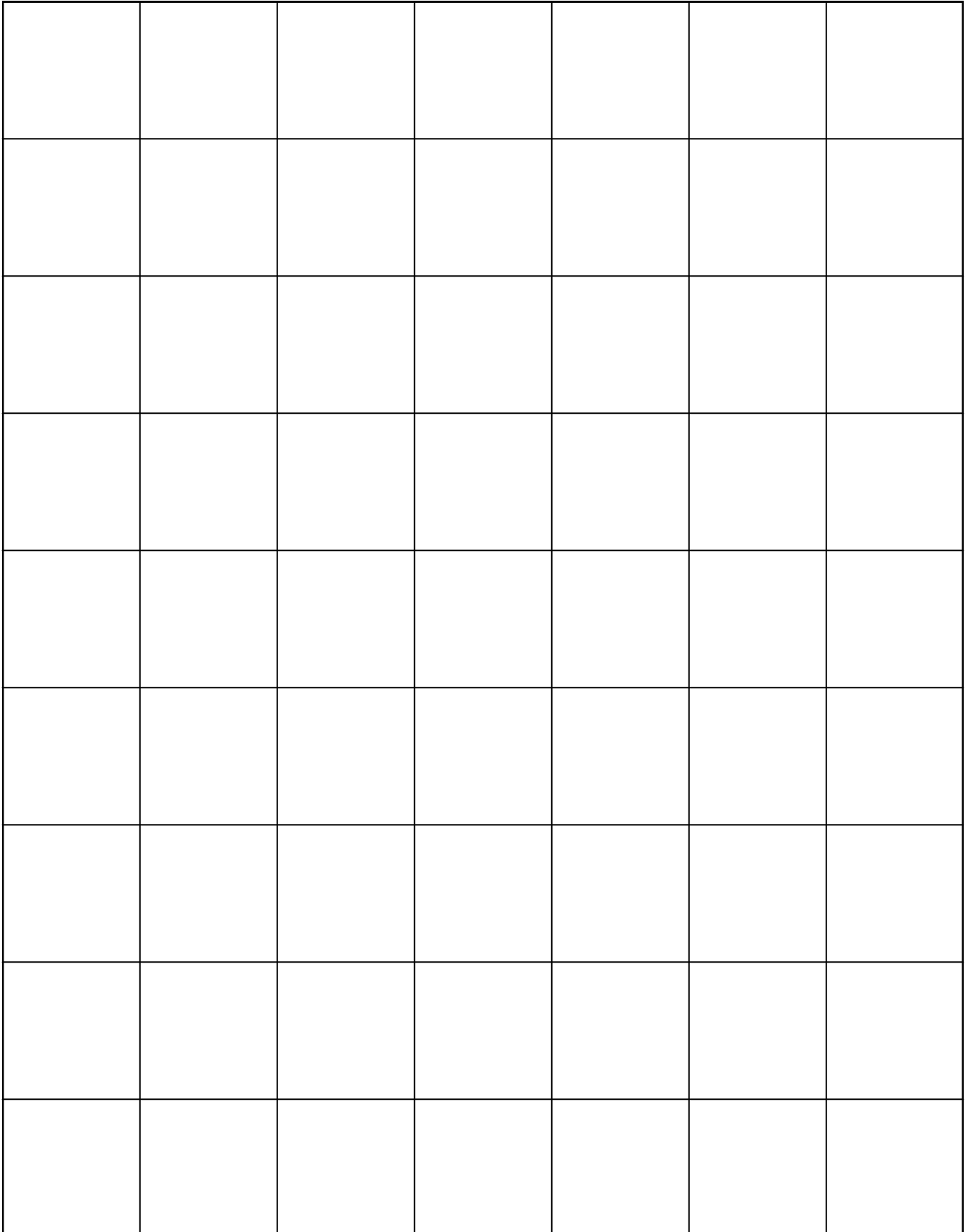3 in

?

1 in

Perimeter = _____

6 in

Mystery Perimeters

Name _____

Detective Dianne discovered the sketches below and needs to find the perimeter of each polygon. However, some of the dimensions are not labeled. Can you help her find the missing dimensions? You may use logical reasoning or manipulatives such as a ruler or square inch tiles to help you solve the mystery. Then calculate the total perimeter of each polygon and write it in the center of the shape.
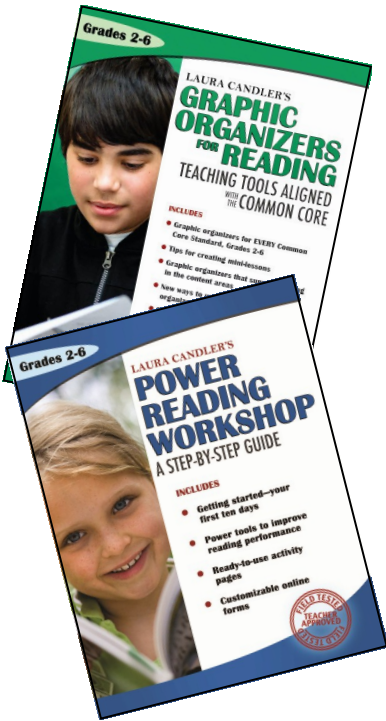
5 in

1 in

Perimeter = _____

?

4 in

2 in

?

3 in

3 in

?

?

Perimeter = _____

1 in

6 in

Inch Grid

Teaching Resources Website
www.lauracandler.com

Ready-to-Use Resources for Teachers!

- Free printables and activity sheets
- Lesson plans and teaching strategies
- Cooperative learning methods
- Classroom management and motivation
- Literacy & Reading Workshop strategies
- Mathematics instructional resources
- Candler's Classroom Connections Newsletters
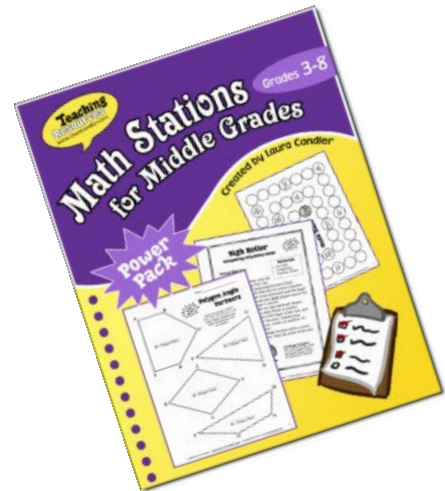
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Created by
Laura Candler
Milken Educator

Laura Candler's TpT Store

If you enjoyed the materials in this teaching resources pack, you might also enjoy these ebooks and lessons. You can purchase them from my store on TeachersPayTeachers.com by clicking the links below or by visiting my Teaching Resources website: www.lauracandler.com.

Laura Candler

Classroom Book Clubs

Character Bio Reports
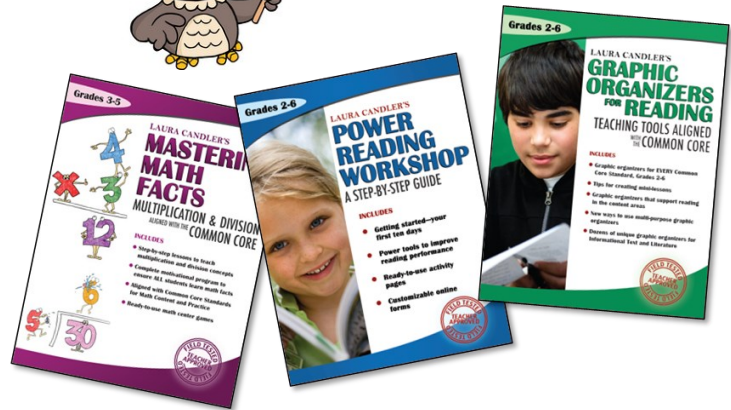
Analyzing Character Traits

Powerful Poetry Combo

Plural Noun Showdown

Sentence Go Round

Writing Powerful Poetry

Customary Measurement Conversions

Geometry: Exploring the Basics

Math Stations for Middle Grades (3-8)

Polygon Explorations

Talking Sticks Discussions (CCSS Aligned)

Teaching Multiple Intelligence Theory

Place Value Spinner Games

Fraction Spinner Games

Simplify and Snap Fraction Game

Order of Operations Bingo

Seasonal Teaching Packs

October

November

December

January

February (Free!)

March

April