

Student Activity Book

Perimeter Page (SAB p. 400)

Perimeter for:

hexagon: 12cm

triangle: 21cm

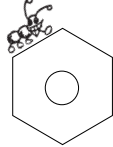
square: 20 cm

pentagon: 20 cm

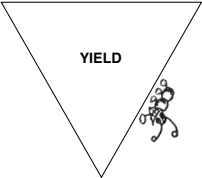
Name \_\_\_\_\_ Date \_\_\_\_\_

### Perimeter Page

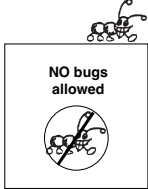
Imagine a bug crawling on the outside path of the shape. The distance it walks is called the **perimeter**. Find the perimeter of each shape. Measure to the nearest whole centimeter.



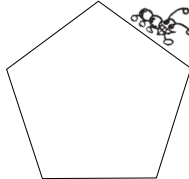
Perimeter \_\_\_\_\_



Perimeter \_\_\_\_\_



Perimeter \_\_\_\_\_



Perimeter \_\_\_\_\_

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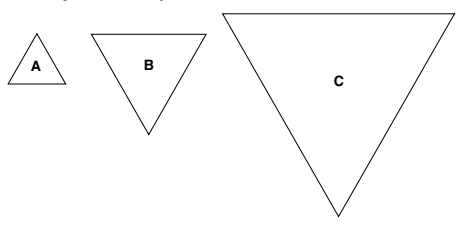
400 SAB • Grade 3 • Unit 10 • Lesson 6
Walking Around Shapes


Student Activity Book - Page 400

Name \_\_\_\_\_ Date \_\_\_\_\_

## Walking Around Triangles

Find the perimeter of each equilateral triangle. Use the data table to record your measurements and write a number sentence. Be ready to tell how you found the perimeter.



Shape: Equilateral Triangle 

Equilateral Triangle	L Length of a Side (in cm)	P Perimeter (in cm)	Number Sentence
A			
B			
C			

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Walking Around Shapes SAB • Grade 3 • Unit 10 • Lesson 6 401

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Name \_\_\_\_\_ Date \_\_\_\_\_

- Finish Carla's solution to find the perimeter of Equilateral Triangle C. Label and tell what each of the numbers mean.

$$3 \times 8 \text{ cm} = \underline{\hspace{2cm}}$$

↑  
○

↑  
○

↑  
○

- Use a piece of *Centimeter Graph Paper* to make a point graph that compares the length of a side (L) to the perimeter (P).
  - Label the horizontal axis "Length of a Side" and number it by ones.
  - Label the vertical axis "Perimeter" and number it by twos.
  - Title the graph.

**Remember to...**

- write neatly.
- number the lines, not the spaces.
- use a ruler to connect the points.

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- What patterns do you see in the Equilateral Triangle data table and graph?

Use a data table or a graph to solve the problems depending on where you need the most practice.


- If the side length of a regular triangle is 20 cm, what is its perimeter? Show or tell how you found the perimeter.

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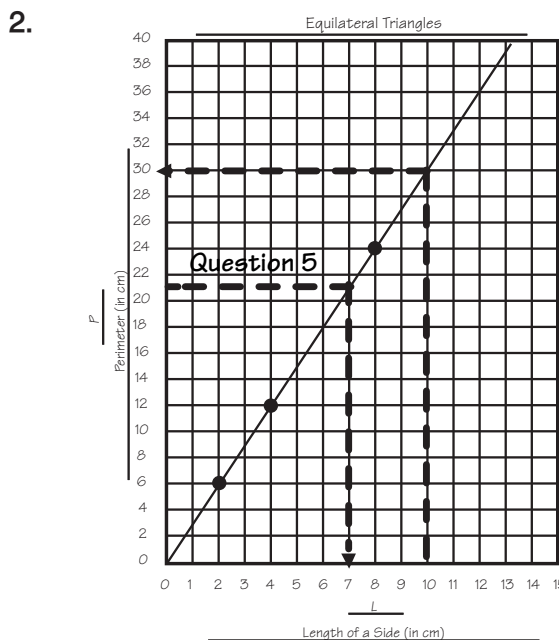
## Walking Around Triangles (SAB pp. 401–403) Questions 1–8

Number sentences will vary.

Shape: Equilateral Triangle 

Equilateral Triangle	L Side Length (in cm)	P Perimeter (in cm)	Number Sentence
A	2	6	$2 + 2 + 2 = 6 \text{ cm}$
B	4	12	$3 \times 4 = 12 \text{ cm}$
C	8	24	$3 \times 8 = 24 \text{ cm}$

1. 
$$\begin{array}{ccc} 3 \text{ sides} & \times & 8 \text{ cm} & = & 24 \text{ cm} \\ \uparrow & & \uparrow & & \uparrow \\ \text{\# of sides} & & \text{side length} & & \text{perimeter} \end{array}$$



3.\* Possible responses: The perimeter is always 3 times the side length. The points on the graph form a straight line.

4. 60 cm;  $3 \times 20 \text{ cm} = 60 \text{ cm}$  or  $20 + 20 + 20 = 60 \text{ cm}$

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5.\* 7 cm; See graph in Question 2 for a solution using the graph. Or,  $21 \div 3 = 7$  cm.

6.

$$\begin{array}{ccc} 21 \text{ cm} & \div & 3 \text{ sides} & = & 7 \text{ cm} \\ \uparrow & & \uparrow & & \uparrow \\ \text{perimeter} & & \# \text{ of sides} & & \text{side length} \end{array}$$

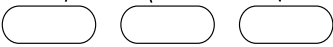
7. 12 cm;  $36 \div 3 = 12$  cm, or use the graph.

8. No, Jason should have divided the perimeter by 3 to find one side; instead he multiplied.

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5. If the perimeter of a regular triangle is 21 cm, how long is the side length? Show or tell how you solved the problem.

6. Johnny decided to write a number sentence for Question 5. Finish Johnny's sentence. Tell what each of the numbers mean.

$$21 \text{ cm} \div 3 \text{ sides} = \underline{\hspace{2cm}}$$


7. If the perimeter of an equilateral triangle is 36 cm, how long is the side length? Show or tell how you found the side length.

8. Jason's solution to Question 7 is below. Do you agree with Jason's solution? How can you help Jason?

$$36 + 36 + 36 = 90 + 18 = 108 \text{ cm}$$

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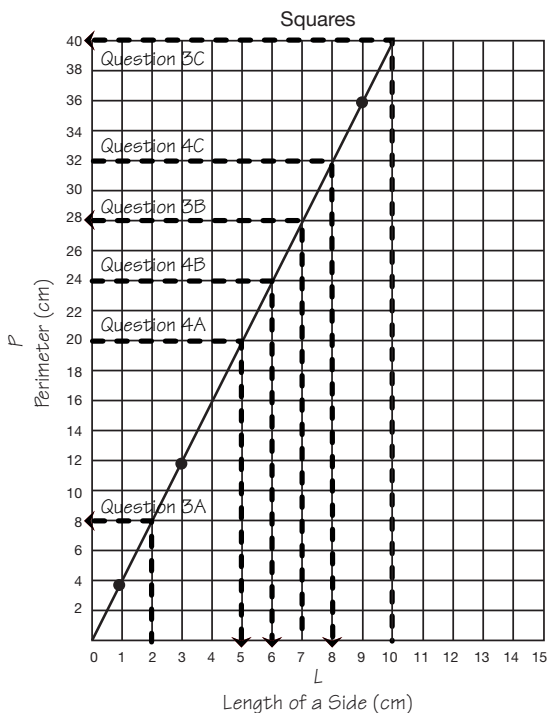
Walking Around Shapes SAB • Grade 3 • Unit 10 • Lesson 6 403

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**Walking Around Squares Continued**  
(SAB p. 407)  
**Questions 1–4**

I.



2. \* Possible patterns: The last column is always a multiple of 4. The perimeter is always 4 times a side. The points make a straight line.
3. Number sentences will vary.

Shape: Square

	L Side Length (in cm)	P Perimeter (in cm)	Number Sentence	Perimeter using the graph
A.	2	8	$4 \times 2 = 8$ cm	8
B.	7	28	$4 \times 7 = 28$ cm	28
C.	10	40	$4 \times 10 = 40$ cm	40

4.

Shape: Square

	L Side Length (in cm)	P Perimeter (in cm)	Number Sentence	Side Length using the graph
A.	5	20	$20 \div 4 = 5$	5
B.	6	24	$24 \div 4 = 6$	6
C.	8	32	$32 \div 4 = 8$	8

Name \_\_\_\_\_ Date \_\_\_\_\_

**Walking Around Squares Continued**

1. Using the data table from the *Walking Around Squares* Homework page and a piece of *Centimeter Graph Paper*, make a point graph that compares the length of a side (L) to the perimeter (P).

- Label the horizontal axis "Length of a Side" and number it by ones.
- Label the vertical axis "Perimeter" and number it by twos.
- Title the graph.

2. What patterns do you see in the graph and the data table?

3. Complete the table. Write a number sentence. Use dotted lines to show how you used the graph.

Shape: Square

	L Side Length (in cm)	P Perimeter (in cm)	Number Sentence	Perimeter Using the Graph
A.	2			
B.	7			
C.	10			

4. Complete the table. Write a number sentence. Use dotted lines to show how you used the graph.

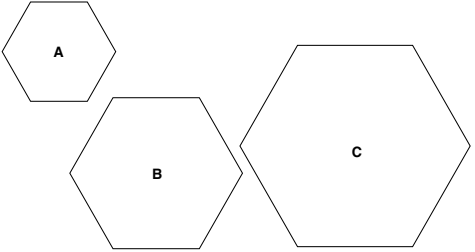
Shape: Square

	L Side Length (in cm)	P Perimeter (in cm)	Number Sentence	Side Length Using the Graph
A.		20		
B.		24		
C.		32		

Name \_\_\_\_\_ Date \_\_\_\_\_

### Walking Around Hexagons

1. Find the perimeter of each regular hexagon. Use the data table to record your measurements and tell how you found the perimeter with a number sentence.



Shape: Regular Hexagon

Regular Hexagon	L Length of a Side (in cm)	P Perimeter (in cm)	Number Sentence
A			
B			
C			

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2. If the perimeter of a regular hexagon is 30 cm, how long is the side length? Tell how you found the side length. Use labels to tell what each number means.

3. Use a piece of *Centimeter Graph Paper* to make a point graph that compares the length of a side (L) to the perimeter (P).

- Label the horizontal axis "Length of a Side" and number it by ones.
- Label the vertical axis "Perimeter" and number it by twos.
- Title the graph.

**Remember to...**

- write neatly.
- number the lines, not the spaces.
- use a ruler to connect the points.

4. What patterns do you see in the graph and the data table? If the data points fall in a line, use a ruler to draw a straight line to connect them.

5. Show how you can use your graph to find the answer to Question 2.

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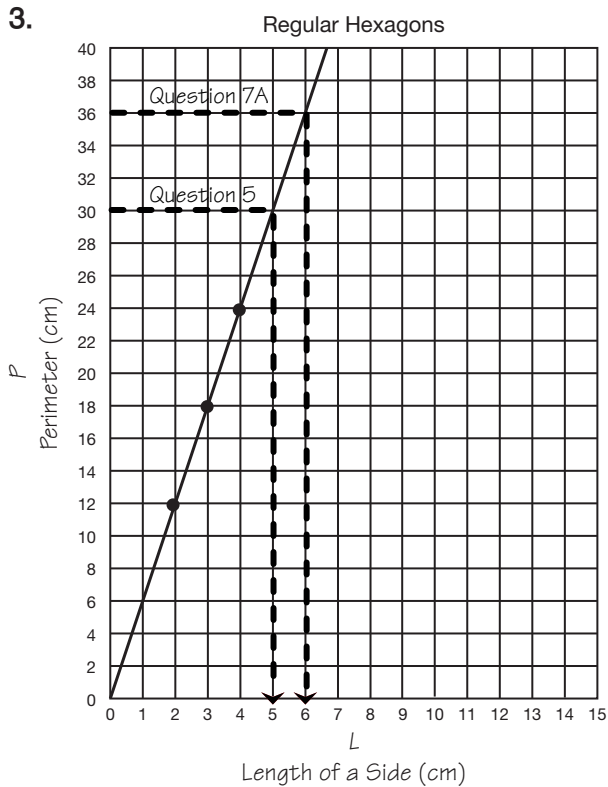
**Walking Around Hexagons (SAB pp. 409–412)**  
**Questions 1–10**

Number sentences will vary.

1. Shape: Regular Hexagon

Hexagon	L Length of a Side (in cm)	P Perimeter (in cm)	Number Sentence
A	2	12	$6 \times 2 = 12\text{cm}$
B	3	18	$6 \times 3 = 18\text{cm}$
C	4	24	$6 \times 4 = 24\text{cm}$


2. 5 cm; Possible strategies: 30 cm divided by 6 is 5 cm. Or  $6 \times 5 \text{ cm} = 30 \text{ cm}$  or  $5 \text{ cm} + 5 \text{ cm} + 5 \text{ cm} + 5 \text{ cm} + 5 \text{ cm} + 5 \text{ cm} = 30 \text{ cm}$ .



4. Possible patterns: The perimeters are all even. The perimeter is always 6 times a side length.

5. See graph for Question 3.


6. A.

Shape: Regular Hexagon 

L Side Length (in cm)	P Perimeter (in cm)	Number Sentence
1	6	$6 \times 1 = 6$
12	72	$12 + 12 + 12 + 12 + 12 + 12 = 72$
15	90	$6 \times 15 = 90$

B. Possible responses: For the hexagon with the side length of 1, I multiplied  $1 \times 6 = 6$  to get the perimeter. When the hexagon has a side length of 12 I added  $12 + 12 + 12 + 12 + 12 + 12 = 72$ , or I know that  $3 \times 12 = 36$  so I doubled the 36 to 72 to find  $6 \times 12 = 72$ . When the hexagon has a side length of 15 I used my graph. I saw that a hexagon with a side length of 5 has a perimeter of 30. 15 is three times five. So to find the perimeter I added  $30 + 30 + 30 = 90$ .

7.


Shape: Regular Hexagon 

L Side Length (in cm)	P Perimeter (in cm)	Number Sentence
A. 6	36	$36 \div 6 = 6$
B. 9	54	$54 \div 6 = 9$
C. 11	66	$66 \div 6 = 11$

8. See graph in Question 3 for extrapolation.
9. Possible response: The pattern in the data table is 6 times the side length equals the perimeter. The perimeter is 54 centimeters.  $6 \times 9 = 54$ , so the side length is 9 centimeters.
10. No, Natasha should have divided 66 cm by 6 sides. There are 6 sides on a hexagon not three sides.


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Name \_\_\_\_\_ Date \_\_\_\_\_

6. A. Complete the table. Write number sentences.  
Shape: Regular Hexagon 

L Side Length (in cm)	P Perimeter (in cm)	Number Sentence
1		
12		
15		

B. Show or tell your partner how you found the perimeter for each of the hexagons in Question 6A.

7. Complete the table. Write number sentences.  
Shape: Regular Hexagon 

L Side Length (in cm)	P Perimeter (in cm)	Number Sentence
A.	36	
B.	54	
C.	66	

8. Look at the table in Question 7. Draw dotted lines on the graph to show how to find the length when the perimeter of the hexagon is 36 cm.

9. Look at the table in Question 7. Show or tell how you find the side length when the perimeter of the hexagon is 54 cm.

10. Natasha used a division number sentence to find the length of each side of a hexagon when the perimeter is 66 cm. Do you agree with Natasha's solution of  $66 \div 3 = 22$  cm? What would you tell Natasha?

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Walking Around Hexagons		Topic	Check	Comments
Feedback Box		Lesson	It	
Extrapolate and extend multiplicative patterns in tables and graphs. (Q# 6-9)		E1		
Represent multiplicative patterns in tables and graphs. (Q# 1, 3, 6-7)		E2		
Multiply and divide using mental math strategies. (Q# 1, 2, 3-10)		E3		
Use area, perimeter, length, width, and number sentences to solve problems using tables, graphs, and number sentences. (Q# 1, 5-6)		E4		
Represent addition strategies for multiplication using tables, graphs, and number sentences. (Q# 2, 5-10)		E5		
Make a point graph. (Q# 3)		E6		
Read a table or point graph. (Q# 2, 4, 4-6)		E7		
Measure to the nearest centimeter. (Q# 1)		E8		
Yes...	Yes, but...	No, but...	No...	

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


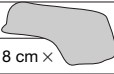
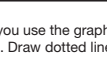

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Name \_\_\_\_\_ Date \_\_\_\_\_

**Professor Peabody's Shapes Data**

1. Professor Peabody studied the side length and the perimeter of different regular shapes. He spilled ink on one of his data tables, but not his graph. Help him fill in the missing data.

Shape: Regular Pentagon 

Regular Pentagon	L Length of a Side (in cm)	P Perimeter (in cm)	Number Sentence
A	3		$3 + 3 + 3 = \text{_____}$
B	4		$5 \times 4 \text{ cm} = \text{_____}$
C		30	
D			$8 \text{ cm} \times \text{_____}$

2. Show how you use the graph to find the perimeter of Regular Pentagon B. Draw dotted lines.

3. Show or tell how you found the side length of Regular Pentagon C.

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TG • Grade 3 • Unit 10 • Lesson 6

Assessment Master

**Teacher Guide**

**Teacher Guide**

**Professor Peabody's Shapes Data (TG)**

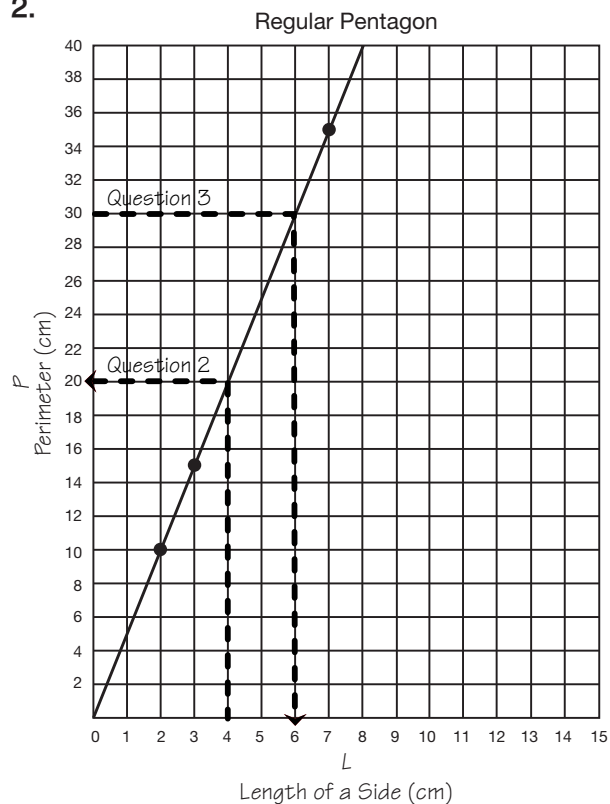
**Questions 1–3**

Number sentences will vary.

1.

Regular Pentagon	L Length of a Side (in cm)	P Perimeter (in cm)	Number Sentence
A	3	15	$3 + 3 + 3 + 3 + 3 = 15 \text{ cm}$
B	4	20	$5 \times 4 \text{ cm} = 20 \text{ cm}$
C	6	30	$30 \text{ cm} \div 5 = 6 \text{ cm}$
D	8	40	$8 \text{ cm} \times 5 = 40 \text{ cm}$

2.



3. Possible strategies: See graph or  $30 \text{ cm} \div 5 = 6 \text{ cm}$ ;  $6 \text{ cm} + 6 \text{ cm} + 6 \text{ cm} + 6 \text{ cm} + 6 \text{ cm} = 30 \text{ cm}$ ;  $5 \times 6 \text{ cm} = 30 \text{ cm}$ .

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