Student Guide

Multiples of Tens and Hundreds (SG pp. 234–235) Questions 1–6

1.* Put a 0 to the right of the number which is being multiplied by 10. For example, $4 \times 10 = 4\underline{0}$ and $5 \times 10 = 5\underline{0}$.

2. **A.** ⋯⋯ **B.** |||| |||| **C.** □□□□ □□□□

$2 \times 4 = 8$ $2 \times 40 = 80$ $2 \times 400 = 800$

3. **A.** ⋯⋯ ⋯⋯ ⋯⋯ **B.** ||||| ||||| ||||| **C.** □□□□□□ □□□□□□ □□□□□□

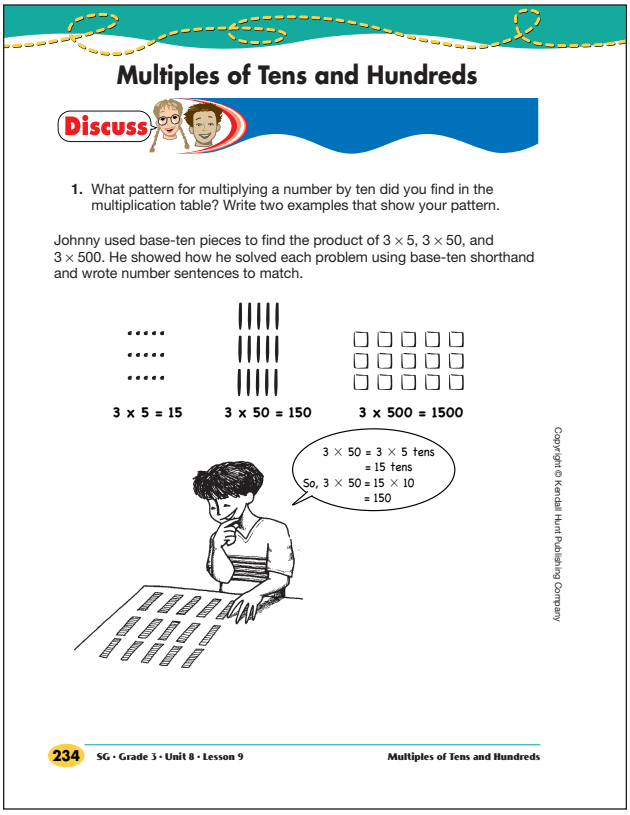
$3 \times 6 = 18$ $3 \times 60 = 180$ $3 \times 600 = 1800$

4. **A.*** ⋯ ⋯ ⋯ ⋯ **B.*** ||| ||| ||| ||| **C.*** □□□ □□□ □□□ □□□

$4 \times 3 = 12$ $4 \times 30 = 120$ $4 \times 300 = 1200$

5.* See discussion in the lesson.

6. **A.** 240 **B.** 370
C. 400 **D.** 3480
E. 600 **F.** 1200
G. 3400 **H.** 87,600



Multiples of Tens and Hundreds

Discuss

1. What pattern for multiplying a number by ten did you find in the multiplication table? Write two examples that show your pattern.

Johnny used base-ten pieces to find the product of 3×5, 3×50, and 3×500. He showed how he solved each problem using base-ten shorthand and wrote number sentences to match.

3 x 5 = 15 3 x 50 = 150 3 x 500 = 1500

3 × 50 = 3 × 5 tens
= 15 tens
So, 3 × 50 = 15 × 10
= 150

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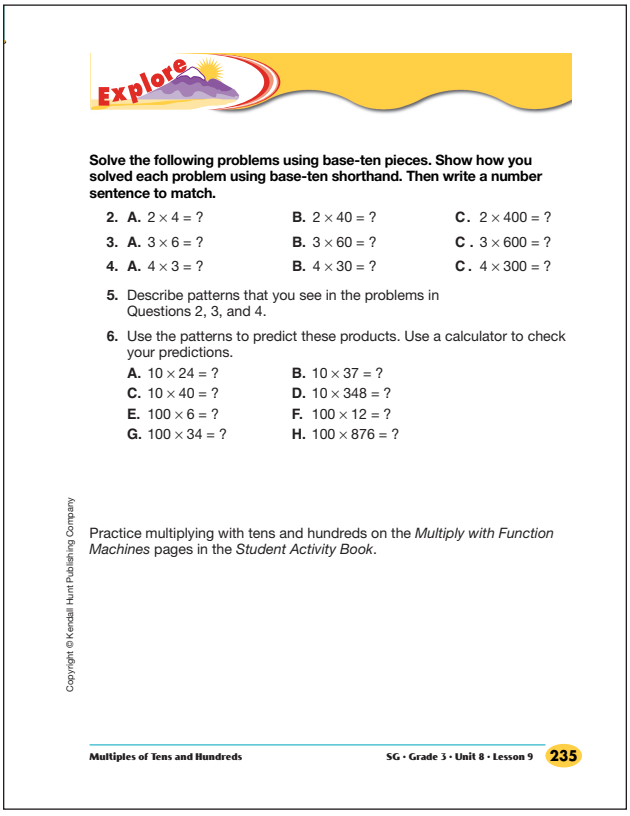

Explore

Solve the following problems using base-ten pieces. Show how you solved each problem using base-ten shorthand. Then write a number sentence to match.

2. **A.** $2 \times 4 = ?$ **B.** $2 \times 40 = ?$ **C.** $2 \times 400 = ?$
3. **A.** $3 \times 6 = ?$ **B.** $3 \times 60 = ?$ **C.** $3 \times 600 = ?$
4. **A.** $4 \times 3 = ?$ **B.** $4 \times 30 = ?$ **C.** $4 \times 300 = ?$
5. Describe patterns that you see in the problems in Questions 2, 3, and 4.
6. Use the patterns to predict these products. Use a calculator to check your predictions.
   A. $10 \times 24 = ?$ **B.** $10 \times 37 = ?$
   C. $10 \times 40 = ?$ **D.** $10 \times 348 = ?$
   E. $100 \times 6 = ?$ **F.** $100 \times 12 = ?$
   G. $100 \times 34 = ?$ **H.** $100 \times 876 = ?$

Practice multiplying with tens and hundreds on the *Multiply with Function Machines* pages in the *Student Activity Book*.

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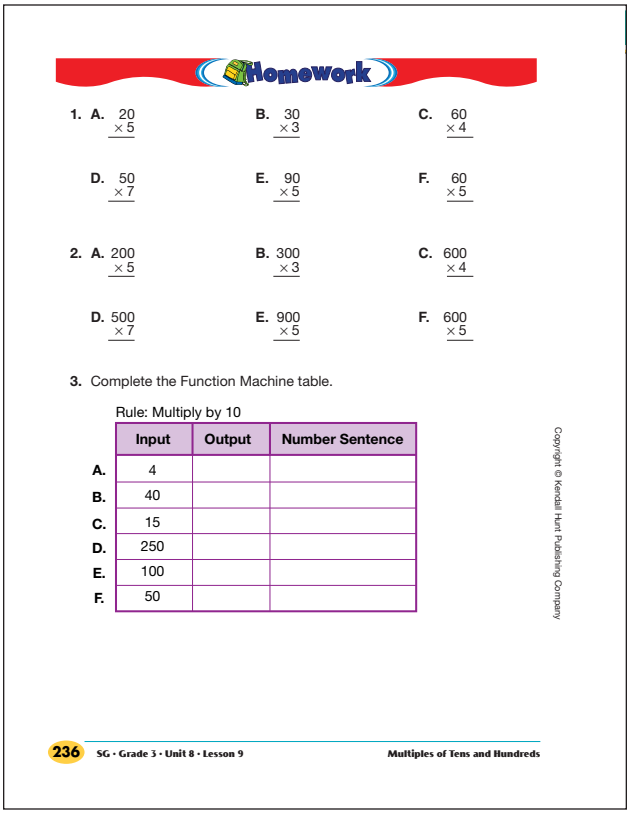
*Answers and/or discussion are included in the lesson.



Homework

1. A. 20×5 B. 30×3 C. 60×4

   D. 50×7 E. 90×5 F. 60×5

2. A. 200×5 B. 300×3 C. 600×4

   D. 500×7 E. 900×5 F. 600×5

3. Complete the Function Machine table.

Rule: Multiply by 10

	Input	Output	Number Sentence
A.	4		
B.	40		
C.	15		
D.	250		
E.	100		
F.	50		

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Homework (SG p. 236)
Questions 1–3

1. A. 100 B. 90 C. 240
   D. 350 E. 450 F. 300

2. A. 1000 B. 900 C. 2400
   D. 3500 E. 4500 F. 3000

3. Rule: Multiply by 10

	Input	Output	Number Sentence
A.	4	**40**	**4 × 10 = 40**
B.	40	**400**	**40 × 10 = 400**
C.	15	**150**	**15 × 10 = 150**
D.	250	**2500**	**250 × 10 = 2500**
E.	100	**1000**	**100 × 10 = 1000**
F.	50	**500**	**50 × 10 = 500**

Student Activity Book

Multiply with Function Machines (SAB pp. 307–308) Questions 1–5

1. Rule: Multiply by 30

Input	Output	Number Sentence
4	**120**	**4 × 30 = 120**
10	**300**	**10 × 30 = 300**
7	**210**	**7 × 30 = 210**
3	**90**	**3 × 30 = 90**

2.* Rule: Multiply by 50

Input	Output	Number Sentence
3	**150**	**3 × 50 = 150**
2	100	**2 × 50 = 100**
5	**250**	**5 × 50 = 250**
8	**400**	**8 × 50 = 400**

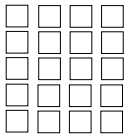
3.* Rule: Multiply by 200

Input	Output	Number Sentence
6	**1200**	**6 × 200 = 1200**
9	**1800**	**9 × 200 = 1800**
3	600	**3 × 200 = 600**
5	**1000**	**5 × 200 = 1000**

4. Rule: Multiply by 400

Input	Output	Number Sentence
8	**3200**	**8 × 400 = 3200**
2	800	**2 × 400 = 800**
4	**1600**	**4 × 400 = 1600**
6	**2400**	**6 × 400 = 2400**

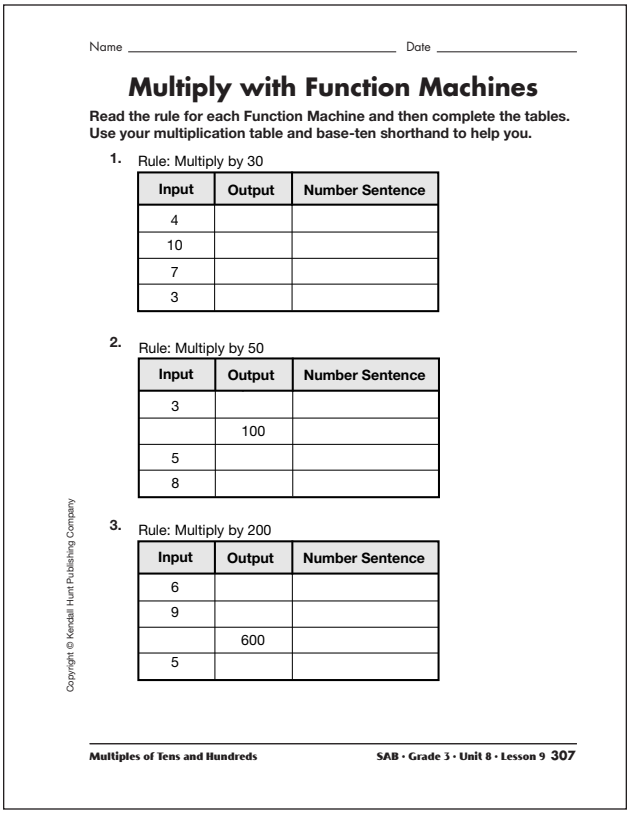
5. A.



$5 \times 400 = 2000$

B. Answers will vary. Possible response: To solve 5×400, I multiplied 5×4 to get 20. Then I put 2 zeros on the answer. $5 \times 400 = 2000$.

C. Answers will vary. Possible response: I do not agree with Luis. 5×400 does not equal 200. 200 doesn't make sense because one of the numbers I am multiplying, 400, is larger than 200. Luis forgot a 0.



Name _____ Date _____

Multiply with Function Machines

Read the rule for each Function Machine and then complete the tables. Use your multiplication table and base-ten shorthand to help you.

1. Rule: Multiply by 30

Input	Output	Number Sentence
4		
10		
7		
3		

2. Rule: Multiply by 50

Input	Output	Number Sentence
3		
	100	
5		
8		

3. Rule: Multiply by 200

Input	Output	Number Sentence
6		
9		
	600	
5		

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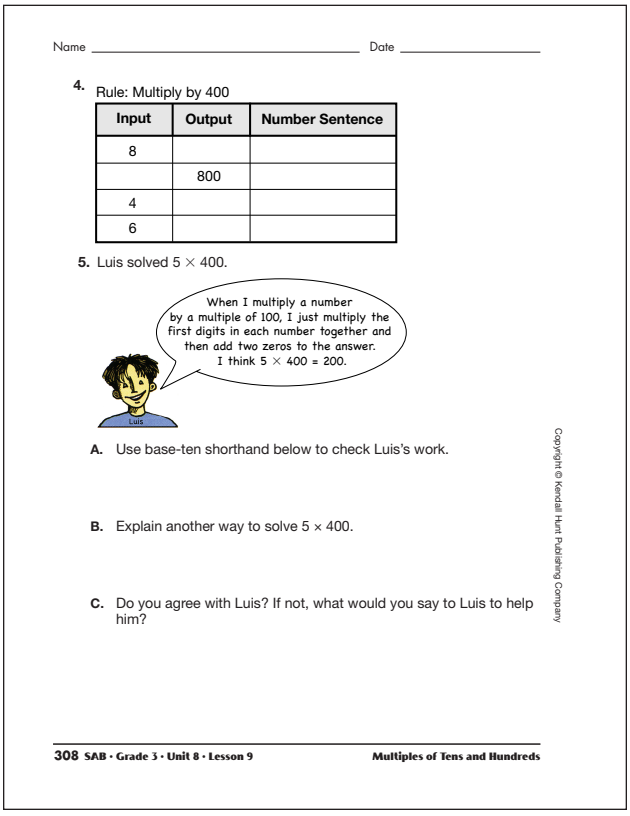

Name _____ Date _____

4. Rule: Multiply by 400

Input	Output	Number Sentence
8		
	800	
4		
6		

5. Luis solved 5×400.

A. Use base-ten shorthand below to check Luis's work.

B. Explain another way to solve 5×400.

C. Do you agree with Luis? If not, what would you say to Luis to help him?

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***Answers and/or discussion are included in the lesson.**

Name _____ Date _____

Professor Peabody's Table

Professor Peabody started to fill in the multiplication table below. He wanted to look for patterns. As he was working, a rare spotted math hopper hopped by his window. He quickly picked up his net and followed it out the window.

Help Professor Peabody by finishing this table for him. Look for patterns. On the back, write a report that tells Professor Peabody about the patterns you find.

×	10	20	30	40	50	60	70	80	90	100
1									90	100
2			60					160	180	
3							210	240		
4						240	280			
5					250	300				500
6				240	300					
7			210	280						
8		160	240						720	
9	90	180								
10	100									

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Professor Peabody's Table (SAB p. 309)

×	10	20	30	40	50	60	70	80	90	100
1	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	90	100
2	**20**	**40**	60	**80**	**100**	**120**	**140**	160	180	**200**
3	**30**	**60**	**90**	**120**	**150**	**180**	210	240	**270**	**300**
4	**40**	**80**	**120**	**160**	**200**	240	280	**320**	**360**	**400**
5	**50**	**100**	**150**	**200**	250	300	**350**	**400**	**450**	500
6	**60**	**120**	**180**	240	300	**360**	**420**	**480**	**540**	**600**
7	**70**	**140**	210	280	**350**	**420**	**490**	**560**	**630**	**700**
8	**80**	160	240	**320**	**400**	**480**	**560**	**640**	720	**800**
9	90	180	**270**	**360**	**450**	**540**	**630**	**720**	**810**	**900**
10	100	**200**	**300**	**400**	**500**	**600**	**700**	**800**	**900**	**1000**

Student reports about patterns will vary.