

Table of contents

OVERVIEW

Program overview	6
Features of a <i>STAMS® Plus</i> lesson.	14
The Australian Curriculum	26
Scope and sequence chart	27

LESSON PLANS

Multiplication

Lesson 1	Multiply 3-digit numbers	31
	Learn about multiplying by 1-digit factors	
	Learn about multiplying by 2-digit factors	

Division

Lesson 2	Divide mentally	39
	Learn about dividing multiples of 10 and 100	
	Learn more about dividing multiples of 10 and 100	

Lesson 3	Estimate quotients	47
	Learn about estimating quotients	
	Learn more about estimating quotients	

Lesson 4	1-digit divisors	55
	Learn about using models to divide by 1 digit	
	Learn about dividing by 1-digit divisors	

Lesson 5	Zeros in the quotient	63
	Learn about using models to divide by 1 digit	
	Learn about writing zero in the quotient	

Lesson 6	2-digit divisors	71
	Learn about dividing by 2-digit divisors	
	Learn about dividing to solve problems	

Fractions

Lesson 7	Understand mixed numbers	79
	Learn about mixed numbers	
	Learn more about mixed numbers	

Fractions *(continued)*

Lesson 8	Add and subtract like fractions	87
	Learn about adding like fractions Learn about subtracting like fractions	
Lesson 9	Compare related and unlike fractions	95
	Learn about finding common denominators Learn about comparing related and unlike fractions	
Lesson 10	Add and subtract related fractions	103
	Learn about adding related fractions Learn about subtracting related fractions	
Lesson 11	Add and subtract mixed numbers	111
	Learn about adding mixed numbers Learn about subtracting mixed numbers	

Decimals

Lesson 12	Add and subtract decimals	119
	Learn about adding decimal numbers Learn about subtracting decimal numbers	

Linear measurement and area

Lesson 13	Area	127
	Learn about area of a parallelogram Learn about area of right-angled triangles	

Surface area and volume

Lesson 14	Surface area	135
	Learn about nets Learn about surface area	
Lesson 15	Understand volume	143
	Learn about volume Learn about volume of prisms	

Graphs

Lesson 16	Line graphs	151
	Learn about interpreting line graphs Learn about creating line graphs	

SCHOOL-HOME CONNECTIONS *(Activity sheets)*

Lessons 1–16	159
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ADDITIONAL LESSON PLANS

Fractions *(Can be used after Lesson 11)*

- Lesson 17** **Multiply whole numbers by fractions** 177
 Learn about multiplying whole numbers by fractions
 Learn more about multiplying whole numbers by fractions
- Lesson 18** **Multiply fractions** 185
 Learn about multiplying fractions by fractions
 Learn about multiplying fractions by mixed numbers
- Lesson 19** **Divide whole numbers by fractions.** 193
 Learn about dividing whole numbers by fractions
 Learn more about dividing whole numbers by fractions

Decimals *(Can be used after Lesson 12)*

- Lesson 20** **Multiply and divide by powers of ten** 201
 Learn about multiplying decimals by powers of ten
 Learn about dividing decimals by powers of ten
- Lesson 21** **Multiply decimals** 209
 Learn about estimating products of decimal numbers
 Learn about finding exact products of decimal numbers
- Lesson 22** **Divide decimals by whole numbers** 217
 Learn about estimating quotients of decimals and whole numbers
 Learn about dividing decimals and whole numbers
- Lesson 23** **Divide by decimals** 225
 Learn about estimating quotients with decimals
 Learn about finding quotients with decimals

ADDITIONAL SCHOOL-HOME CONNECTIONS *(Activity sheets)*

- Lessons 17–23** 233

Lesson 1 MULTIPLY 3-DIGIT NUMBERS

LESSON OBJECTIVES

Students will:

- Multiply 3-digit numbers by 1-digit numbers.
- Multiply 3-digit numbers by 2-digit numbers.

RELATED AUSTRALIAN CURRICULUM CONTENT DESCRIPTIONS

See page 26 to cross-reference this lesson with aligned Australian Curriculum content descriptions.

PREREQUISITES

Students should be able to:

- Multiply 2-digit numbers.
- Use models to multiply.

RELATED STAMS® PLUS LESSONS

- **Book D – Lesson 3**

Multiply by 1-digit numbers introduces adding partial products to find the product.

- **Book D – Lesson 4**

Multiply by 2-digit numbers introduces regrouping in multiplication of two 2-digit numbers.

VOCABULARY

PAGE 4

- **2-digit number:** a number with digits in the ones place and the tens place
- **product:** the result of multiplication
- **3-digit number:** a number with digits in the ones place, the tens place and the hundreds place

PAGE 6

- **estimate:** to find an answer that is close to the exact answer by rounding or using compatible numbers
- **factor:** a number that is multiplied by another number
- **partial product:** the result of multiplying one place value of a 2- or 3-digit number

MATHS BACKGROUND

In this lesson students learn how to multiply 3-digit numbers by 1-digit numbers and then by 2-digit numbers. They learn how to regroup ones as tens and tens as hundreds as they multiply, using the standard algorithm to record their results.

To multiply a 3-digit number by a 2-digit number, we need to do 6 individual multiplications and then add the results. The left side of the figure below shows all 6 multiplications and the final result for 23×381 . The right side of the figure shows how we use the standard algorithm, recording partial products and the final result. This algorithm is the focus of part two of this lesson. If students have difficulty understanding the algorithm, demonstrate the method on the left.

3×1	→	3	}	→	381	}	$\times 23$	1		
3×80	→	240			2		381	$\times 23$		
3×300	→	900			381		$\times 23$			
20×1	→	20	}	→	20	}	1143	1		
20×80	→	1600			20		1143	1	2	381
20×300	→	6000			1600		1143	1	2	381
		8763			6000		8763	8763		

$3 + 240 + 900$ is the partial product 1143.

$20 + 1600 + 6000$ is the partial product 7620.



Interactive Whiteboard

Visualise place value of whole numbers up to 10 000

Go to the *IWB lessons* to bring parts one and two to life. Use features such as sliding screens with additional practice to deepen students' understanding of place value of whole numbers up to 10 000.



Download

<http://iwb.camsandstams.com.au>

Modelled Instruction

Lesson 1 MULTIPLY 3-DIGIT NUMBERS
PART ONE: Learn about multiplying by 1-digit factors

How can you multiply 3-digit numbers by 1-digit numbers?

Explore
You can use place value to multiply 2-digit numbers. Multiply the ones. Multiply the tens. The product is 420.
How can you multiply 3-digit numbers? 4×132

Think
 4×132 is the same as 4 groups of 132.
 $132 = 1$ hundred, 3 tens and 2 ones.

Connect
Set up the problem vertically. Follow the steps to multiply.

<p>Step 1. Multiply the ones.</p> $\begin{array}{r} 132 \\ \times 4 \\ \hline 8 \end{array}$ <p>Multiply 2 ones by 4 to get 8 ones.</p>	<p>Step 2. Multiply the tens.</p> $\begin{array}{r} 132 \\ \times 4 \\ \hline 28 \end{array}$ <p>Multiply 3 tens by 4 to get 12 tens. Regroup 10 tens as 1 hundred.</p>	<p>Step 3. Multiply the hundreds.</p> $\begin{array}{r} 132 \\ \times 4 \\ \hline 528 \end{array}$ <p>Multiply 1 hundred by 4 to get 4 hundreds. Add the regrouped hundred.</p>
--	--	--

The product of $4 \times 132 = 528$.

Let's Talk
If there are only 4 hundreds blocks in the model, why does the product have 5 hundreds?

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Guided Instruction

Multiply 3-digit numbers

Think It Through

Fill in the blanks. Solve the problem.

Members of the year five class are giving 3 performances of their spring concert. The school theatre has 248 seats. They sold all the tickets available for each show.

How many tickets did they sell in all?

3×248 is the same as 3 groups of 248.
 $248 = 2$ hundreds, 4 tens and 8 ones.

Follow the steps to multiply 3×248 .

- Multiply the ones.
Multiply 8 ones by 3 to get 24 ones.
Regroup 20 ones as 2 tens.
- Multiply the tens.
Multiply 4 tens by 3 to get 12 tens.
Add the regrouped ones to get 14 tens.
Regroup 10 tens as 1 hundred.
- Multiply the hundreds.
Multiply 2 hundreds by 3 to get 6 hundreds.
Add the regrouped hundred to get 7 hundreds.

Solution: The year five class sold 744 tickets.

Your Turn Now, use what you know to solve this problem.

- A shop ordered 5 boxes of rulers. There are 125 rulers in each box. What is the total number of rulers the shop ordered?

A 505 $\begin{array}{r} 125 \\ \times 5 \\ \hline 625 \end{array}$
 B 580
 C 625
 D 705

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AT A GLANCE

Students activate their background knowledge about multiplying 2-digit numbers and then learn how to multiply a 3-digit number by a 1-digit number.

STEP BY STEP

PAGE 4

- Introduce the **Question** at the top of the page.
- Have students review the multiplication problem in **Explore**. Discuss regrouping. Point out that 20 ones are regrouped as 2 tens in this problem.

EAL/D Support: Explain that regrouping does not change the value of an amount. Show that although 1 dollar can be regrouped as 20 5¢ coins, they both equal the same amount.

- Read **Think** with students. Help students relate the model to the multiplication problem.
- Discuss **Connect** with students. Read each step and study the problem below it. Explain that the shaded parts show the operation being completed during each step.

- Organise students in pairs or groups for **Let's Talk** and monitor their discussions.
- Suggest that students count the tens blocks during their discussion. There are more than 10 tens blocks, so 10 of them are regrouped as 1 hundreds block.

PAGE 5

- Read the **Think It Through** problem with students.
- Help students identify the multiplication problem. Guide students as they solve the problem.
- Encourage students to follow the steps provided.

Tip: Tell students to draw a model to show 3 groups of 248. Have them refer to their model to check their answers.

- Monitor students as they complete **Your Turn**. Then discuss the correct answer.

Error Alert: Students who chose A may not have remembered to add the amounts that were regrouped.



ADDITIONAL ACTIVITY

See **Hands-on Activity** (page 38).

Modelled Instruction

PART TWO: Learn about multiplying by 2-digit factors

How can you multiply 3-digit numbers by 2-digit numbers?

Explore To multiply a 3-digit number by a 1-digit number, use place value to multiply each digit in the 3-digit number by the 1-digit number. Regroup as needed.

$$\begin{array}{r} 11 \\ 236 \\ \times 3 \\ \hline 708 \end{array}$$

How can you multiply 3-digit numbers by 2-digit numbers? 23×381

Think Estimate the product. Round factors to numbers that are easy to multiply. Round 23 to 20. Round 381 to 400. The estimated product is $20 \times 400 = 8000$. The actual product should be close to 8000.

Find the actual product. Set up the problem vertically. Follow the steps.

Step 1. Multiply the ones, tens and hundreds by the ones.

Step 2. Multiply the ones, tens and hundreds by the tens. Write 0 in the ones place because the tens are being multiplied.

Step 3. Add the partial products to find the product.

$$\begin{array}{r} 381 \\ \times 23 \\ \hline 1143 \\ 7620 \\ \hline 8763 \end{array}$$

Multiply 381 by 3 ones. Multiply 381 by 2 tens. Add 1143 and 7620. The actual product of $23 \times 381 = 8763$. This is close to the estimate 8000.

Let's Talk Why was it necessary to write a zero in the second partial product?

Guided Instruction

Multiply 3-digit numbers

Think It Through

Fill in the blanks. Solve the problem.

Martin put \$186 into his bank account each month for 18 months. How much money did Martin save?

■ Estimate the product.
Round 18 to 20. Round 186 to 200.
The estimated product is $20 \times 200 = 4000$.
The actual product should be close to 4000.

■ Follow the steps to multiply 18×186 .

- Multiply the ones, tens and hundreds by the ones. So, multiply 186 by 8 ones. Regroup as needed. Write the partial product.
- Multiply the ones, tens and hundreds by the tens. So, multiply 186 by 1 ten. Write 0 in the ones place because the tens are being multiplied. Write the partial product.
- Add the partial products to find the product.

■ The actual product, 3348, is close to the estimate of 4000. The answer is reasonable.

Solution: Martin saved \$ 3348 in all.

Your Turn Now, use what you know to solve this problem.

- There are 365 days in 1 year. How many days are there in 21 years? Show your work.

$$\begin{array}{r} 11 \\ 365 \\ \times 21 \\ \hline 7300 \\ 7665 \\ \hline 7665 \end{array}$$

$21 \times 365 = \underline{7665}$ days

For this product, you need to regroup when multiplying the ones in the 2-digit number, but not the tens. Be sure to not add the regrouped numbers again when you find the second partial product.

AT A GLANCE

Students learn to multiply 3-digit numbers by 2-digit numbers.

STEP BY STEP

PAGE 6

- Introduce the **Question** at the top of the page.
- Read **Explore** with students. Reinforce the steps involved in multiplying 3-digit numbers by 1-digit numbers. Review regrouping.
- Read **Think** with students. Discuss why it is helpful to estimate the product. Pause so students can read aloud the shaded numbers.
- Tell students that the steps in **Connect** are similar to steps they used to multiply by 1-digit numbers. The difference here is that they must find partial products to find the overall product.

EAL/D Support: The word *partial* has the word *part* in it. Explain that a *partial product* is only *part* of the product. All of the partial products combine to give the product.

- Organise students in pairs or groups for **Let's Talk** and monitor their discussions.
- Be sure students understand that the zero is used to “hold”, or indicate, the tens place, because you are multiplying by 2 *tens*, not 2.

PAGE 7

- Read the **Think It Through** problem with students.
- Guide students as they solve the problem. Pause for students to fill in missing information. Then discuss each response.

Tip: Tell students that if the answer they find is *very* different from the estimate, they should check their work to find any possible error.

- Monitor students as they complete **Your Turn**. Then discuss the correct answer.

Error Alert: Students who answered 7300 may have given the second partial product as the answer.



ADDITIONAL ACTIVITY

See **Reteaching Activity** (page 38).

Modelled Practice

PART THREE: Choose the right answer

Solve the problem. Then read why each answer choice is correct or not correct.

Solve

Mr Wilson drives 143 kilometres to and from work each day. What is the total number of kilometres he drives in 9 days?

Ⓐ 967
Ⓑ 1142
● 1287
Ⓒ 1627

Check

Check to see if you chose the correct answer.

Find the product of 9×143 . Set up the problem vertically.

$9 \times 3 = 27$. Regroup 20 ones as 2 tens.	$\begin{array}{r} 33 \\ 143 \\ \times 9 \\ \hline \end{array}$
$9 \times 4 = 36$. Add the regrouped tens and regroup 30 tens as 3 hundreds.	
$9 \times 1 = 9$. Add the regrouped hundreds.	

The product is 1287.
So, the correct answer is Ⓒ.

Why are the other answer choices not correct?

Ⓐ 967	The regrouped amounts are <i>not</i> included in this answer.
Ⓑ 1142	Each digit in 143 was <i>added</i> to 9 instead of multiplied by 9.
Ⓒ 1627	The 2 regrouped tens were <i>multiplied</i> instead of added.

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Guided Practice

Multiply 3-digit numbers

Your Turn Solve each problem. Use the hints to avoid mistakes.

- Identify the numbers being multiplied. Write the multiplication vertically with the number with fewer digits on the bottom.
- Regroup amounts as needed. Remember to add (not multiply) the regrouped amounts.
- When multiplying a 3-digit number by the tens place of a 2-digit number, write a zero in the ones place to be sure the partial product has the correct place value.

3. What are the partial products when multiplying 492×13 ?

● 1476 and 4920
Ⓑ 14760 and 492
Ⓒ 2476 and 492
Ⓓ 1276 and 4920

4. There are 124 seats on a small aeroplane. An airline owns 35 of these aeroplanes. How many seats are there in all the aeroplanes?

Ⓐ 992
Ⓑ 1590
Ⓒ 3724
● 4340

5. An animal shelter can hold 268 dogs. Each dog needs 2 bowls: one for its food and one for its water. What is the total number of bowls the animal shelter needs?

Ⓐ 426
Ⓑ 490
● 536
Ⓓ 686

6. A book company is inviting 8 students from each school to submit an essay for a contest. There are 231 schools. What is the total number of students who may submit essays to the contest?

Ⓐ 2318
● 1848
Ⓒ 1648
Ⓓ 1119

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AT A GLANCE

Students reinforce their understanding of multiplication concepts through solving a multiple-choice problem and analysing correct and incorrect answer choices.

STEP BY STEP

PAGE 8

- Tell students that this page models finding the correct answer to a multiple-choice problem.
- Have students read the problem in **Solve** and choose the best answer. Remind students to check their maths.
- Examine **Check** with students. Discuss the correct and incorrect choices.

PAGE 9

- Monitor students as they complete **Your Turn**.
- Organise students in pairs or small groups and have them discuss why each answer choice is correct or not and what errors may have been made.
- Review the answers with the class.



ADDITIONAL ACTIVITY

See **Vocabulary Activity** (page 38).

Answer Analysis

3. ● $492 \times 3 = 1476$ and $492 \times 10 = 4920$.
 Ⓑ Wrote the placeholder in the wrong partial product.
 Ⓒ Multiplied the regrouped amounts and did not include placeholder zero.
 Ⓓ Did not regroup when multiplying the ones.
4. Ⓐ Did not use a placeholder.
 Ⓑ Added some place values instead of multiplying.
 Ⓒ Chose based on the estimate $100 \times 35 = 3500$.
 ● $124 \times 35 = 4340$.
5. Ⓐ Did not include regrouped amounts.
 Ⓑ Added place values instead of multiplying.
 ● $268 \times 2 = 536$.
 Ⓓ Chose based on the estimate $300 \times 2 = 600$.
6. Ⓐ Combined digits instead of multiplying.
 ● $231 \times 8 = 1848$.
 Ⓒ Did not add regrouped amounts.
 Ⓓ Added place values instead of multiplying.

Modelled Practice

PART FOUR: Write the best answer

Study the model. It is a good example of a written answer.

Student model

Each shelf in the public library can hold 267 books. There are 36 shelves in the fiction section. How many fiction books can this section of the library hold?

Use pictures, words or numbers to show your work.

Estimate. $40 \times 250 = 10\,000$

Find 36×267 .

	22
	44
	267
1.	$\times 36$
	1602
2.	$+ 8010$
3.	9612

Solution: The library can place 9612 books in the fiction section.

Explain how you got your answer.

I needed to find the product of a 3-digit number and a 2-digit number, so I first estimated: $40 \times 250 = 10\,000$.

Then, I multiplied the ones, tens and hundreds in 267 by the 6 ones in 36 and wrote the partial product. Next, I multiplied the ones, tens and hundreds in 267 by the 3 tens in 36. Because I was multiplying by tens, I wrote a zero in the ones place of the partial product. Finally, I added the partial products, 1602 and 8010, to find the product, 9612.

Show

Explain

The student shows each step.

The student correctly answers the question asked.

The student gives important details about how to find the product.

The student uses the maths words *product*, *3-digit number*, *2-digit number*, *estimate* and *partial products*.

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Guided Practice

Multiply 3-digit numbers

Your Turn Solve the problem. Use what you learned from the model.

7. A battery can power a radio for 201 hours. For how many hours can a 24-pack of batteries power the radio?

Use pictures, words or numbers to show your work.

Estimate. $25 \times 200 = 5000$

Find 24×201 .

	201
	$\times 24$
	804
	$+ 4020$
	4824

CHECKLIST

Did you ...

show each step?

answer the question asked?

give important details?

use maths words?

1. Multiply 201 by 4 ones.

2. Multiply 201 by 2 tens.

3. Add the partial products.

Solution: A 24-pack of batteries can power the radio for 4824 hours.

Explain how you got your answer.

I needed to find the product of a 3-digit number and a 2-digit number, so I first estimated: $25 \times 200 = 5000$. Then, I multiplied the ones, tens and hundreds in 201 by the 4 ones in 24 and wrote the partial product. Next, I multiplied the ones, tens and hundreds in 201 by the 2 tens in 24. Because I was multiplying by tens, I wrote a zero in the ones place of the partial product. Finally, I added the partial products, 804 and 4020, to find the product, 4824.

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AT A GLANCE

Students study a model answer to an extended-response problem.

STEP BY STEP

PAGE 10

- Tell students that this page models building the solution to a problem one step at a time and writing to explain the solution.
- Have students read the problem in **Show**. Discuss the multiplication problem and how each mathematical step leads to the solution.

Tip: Remind students that there is more than one way to estimate the product. For this example, students can also estimate using these calculations: $300 \times 40 = 12\,000$ and $300 \times 35 = 10\,500$.

- Read **Explain** with students. Have students circle the maths words in the explanation.
- Direct students' attention to the notes in the right margin. Tell them that this model would receive a high score for the reasons described in these notes.

PAGE 11

- Monitor students as they complete **Your Turn**.
- Encourage students to follow the **Checklist** to write the best answer.
- Have students discuss their work with a partner. Then discuss the correct answer as a class.

Answer and Explanation

7. See the sample answer. This answer shows all of the steps taken to solve the problem, including estimating the answer and writing the steps to find the product. The solution answers the question. The explanation provides important details about how the problem was solved and uses the maths words *product*, *3-digit number*, *2-digit number*, *estimate* and *partial products*.



ADDITIONAL ACTIVITY

See **Real-World Connection** (page 38).




ADDITIONAL ACTIVITY

See **School-Home Connection** (page 38).

Independent Practice

PART FIVE: Prepare for a test



As you solve multiplication problems, remember to:

- write the steps to multiply 3-digit numbers by 1- or 2-digits.
- add the regrouped amounts.
- add the partial products together to find the product.
- estimate to check if your answer is reasonable.

Solve each problem.

8. A skateboard company produces 258 skateboards each week. Every skateboard has 4 wheels. How many wheels does the company use each week to produce the skateboards?
 - Ⓐ 802
 - 1032
 - Ⓒ 2584
 - Ⓓ 4258
9. Brooke is using a hose to fill a swimming pool. The hose adds 826 litres of water to the pool each hour. How many litres of water can Brooke add to the swimming pool in 5 hours?
 - 4130 litres
 - Ⓑ 4100 litres
 - Ⓒ 4000 litres
 - Ⓓ 911 litres
10. A movie complex has 12 theatres. Each theatre has 328 seats. What is the total number of seats in the movie complex?
 - Ⓐ 984
 - Ⓑ 1646
 - Ⓒ 3400
 - 3936
11. A spider has 8 legs. Which is the most reasonable estimate for the total number of legs 532 spiders have?
 - Ⓐ 580
 - Ⓑ 3600
 - 4000
 - Ⓓ 5800
12. One truck carries 682 oranges. How many oranges do 12 trucks carry?
 - Ⓐ 12 682
 - 8184
 - Ⓒ 6700
 - Ⓓ 2046

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Independent Practice

Multiply 3-digit numbers

13. A farmer bought 362 packages of seeds. Each package contains 24 seeds. How many seeds did the farmer buy in all?
 - Ⓐ 2172
 - Ⓑ 2534
 - Ⓒ 3860
 - 8688
14. One chocolate-chip biscuit has 358 kilojoules. Write an equation that shows the total number of kilojoules in 9 chocolate-chip biscuits.

$$\begin{array}{r} 57 \\ 358 \\ \times 9 \\ \hline 3222 \end{array}$$

$9 \times 358 \text{ kJ} = 3222 \text{ kJ}$
15. A zookeeper feeds the giraffes 382 kilograms of food each week. How much food does the zookeeper need to feed the giraffes for one year? (Hint: There are about 52 weeks in one year.)
Use pictures, words or numbers to show your work.

Estimate. $50 \times 400 = 20\,000$

Find 52×382 .

 1. Multiply 382 by 2 ones.
 2. Multiply 382 by 5 tens.
 3. Add the partial products.

$$\begin{array}{r} 41 \\ 382 \\ \times 52 \\ \hline 764 \\ + 19100 \\ \hline 19864 \end{array}$$

Solution: The zookeeper needs 19 864 kilograms of food.

Explain how you found your answer.

I needed to find the product of a 3-digit number and a 2-digit number, so I first estimated: $50 \times 400 = 20\,000$. Then, I multiplied the ones, tens and hundreds in 382 by the 2 ones in 52 and wrote the partial product. Next, I multiplied the ones, tens and hundreds in 382 by the 5 tens in 52. Because I was multiplying by tens, I wrote a zero in the ones place of the partial product. Finally, I added the partial products, 764 and 19100, to find the product, 19 864.

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AT A GLANCE

Students practise using multiplication to solve problems that might appear on a mathematics test.

STEP BY STEP

PAGES 12–13

- Tell students that they will practise solving multiplication problems that involve 3-digit numbers.
- Point out the tips at the top of page 12. Explain to students that these tips will help them answer the problems correctly.
- You may wish to have students review the hints for avoiding mistakes on page 9 as well.
- Tell students to complete problems 8–15 on pages 12 and 13. Encourage students to check their answers.
- Discuss the correct responses as a class.

Answers and Explanations

8. Ⓑ Multiply the ones, tens and hundreds in 258 by 4. $4 \times 258 = 1032$
9. Ⓐ Multiply the ones, tens and hundreds in 826 by 5. $5 \times 826 = 4130$
10. Ⓓ Multiply the ones, tens and hundreds in 328 by the 2 ones in 12 to get 656. Multiply the ones, tens and hundreds in 328 by the 1 ten (using zero as a placeholder) to get 3280. Add the partial products. $656 + 3280 = 3936$
11. Ⓒ Round 532 to 500. Estimate. $500 \times 8 = 4000$
12. Ⓑ Multiply the ones, tens and hundreds in 682 by the 2 ones in 12 to get 1364. Multiply the ones, tens and hundreds in 682 by the 1 ten (using zero as a placeholder) to get 6820. Add the partial products. $1364 + 6820 = 8184$
13. Ⓓ Multiply the ones, tens and hundreds in 362 by the 4 ones in 24 to get 1448. Multiply the ones, tens and hundreds in 362 by the 2 tens (using zero as a placeholder) to get 7240. Add the partial products. $1448 + 7240 = 8688$

(continued on page 37)

(continued from page 36)

14. Multiply the ones, tens and hundreds in 358 by 9.

$$9 \times 358 = 3222$$

Because the question asks for a number sentence, the complete answer is $9 \times 358 = 3222$.

15. See the sample answer. This answer shows all of the steps taken to solve the problem, including estimating the answer and writing the steps to find the product. The solution answers the question. The explanation provides important details about how the problem was solved and uses the maths words *product*, *3-digit number*, *2-digit number*, *estimate* and *partial products*.



ASSESSMENT AND REMEDIATION

- Ask students to find the product of 28×576 . (16 128)
- For students who are still struggling, use the chart below to guide remediation.
- After providing remediation, check students' understanding. Ask students to explain their thinking while finding the product of 54×187 . (10 098)
- If a student is still having difficulty, use *STAMS® Plus Book D*, Lesson 4, pages 34–43.

If the error is . . .	Students may . . .	To remediate . . .
showing the first partial product as 4068 and/or the second as 10 420	have ignored the regrouped amounts.	Remind students that regrouped amounts must be added to the product of the related place value. Work through several examples together on the board. Tell students to write neatly so they can read any numbers they write to show regrouped amounts.
showing the first partial product as 1464 and/or the second as 7980	have added the ones, tens and hundreds of the 3-digit number, respectively, to the ones (or tens) digit of the 2-digit number.	Review the multiplication algorithm. Addition is used to include the regrouped amounts and to combine the partial products. The digits themselves should be multiplied. Show students how to multiply one place value at a time by multiplying 8×6 , 8×70 and then 8×500 .
a final product of 5760	have not included a placeholder zero.	Explain that when multiplying the digits 2 and 6, students are actually multiplying 20 by 6, because the 2 is in the tens place. Show that this is why they must write a zero as a placeholder in the second partial product.
a final product of 10 118	have made a multiplication error when multiplying 4 ones by 8 tens.	Ask the student to verbally explain each step of the multiplication. He or she will likely catch the multiplication error.



ADDITIONAL ACTIVITY

For students who have mastered the skills in this lesson, see **Challenge Activity** (page 38).

ADDITIONAL ACTIVITIES



Hands-on Activity

Use counters and place-value mats to model multiplication.

Materials: counters, place-value mats

Organise students in small groups and distribute counters and mats.

Have students use their counters and mats to represent a multiplication problem such as $3 \times 118 = 354$. Tell students to present their models and show how the model illustrates the product by writing the related problem on the board. Encourage them to explain any regrouping.



Reteaching Activity

Use many partial products to multiply.

Materials: project paper, textas

Use a different partial product for each multiplication step in the problem. Show students how to multiply 347×59 . Write the problem vertically on the board. Ask, "What is 9×7 ?" (*63 ones*) Write this as the first partial product. "What is 9×4 tens?" (*36 tens or 360*) Write this as the next partial product. "What is 9×3 hundreds?" (*27 hundreds or 2700*) Write this as the next partial product. "What is 5 tens $\times 7$?" (*35 tens or 350*) Write this as the next partial product. Continue this process, writing the remaining partial products as 2000 and 15 000. Then find the sum of all the products. (*20 473*) Explain that this is the product of 347×59 .



Vocabulary Activity

Play "Guess the Term" to reinforce terms.

Materials: index cards

Have students write each vocabulary term on a separate index card. Ask them to define the term in their own words on the opposite side of the card. Tell students to include an example with each definition.

When the cards are complete, have students take turns showing their definitions to a partner who tries to identify the term. Have students adjust their definitions as necessary and then repeat with the revised definitions and a different partner.



Real-World Connection

Identify everyday examples that involve multiplying 3-digit numbers.

Ask each student to write a real-world problem that involves multiplying by a 3-digit number. Allow students access to magazines and newspapers to gather ideas. Have students present their examples to the class.



School-Home Connection

Inform families about multiplication.

Give each student a copy of the School-Home Connection activity sheet for Lesson 1 (page 159) to share with the family. The activity in the letter has the family solve multiplication problems about words in a newspaper.



Challenge Activity

Find errors in multiplication problems.

Work out several problems involving the multiplication of 3-digit numbers. In each problem, include a minor error that leads to an incorrect product. Distribute the problems to pairs of students and challenge them to find the error. Ask students to work out the problem correctly to show the correct product.