Reasoning and Problem Solving
Step 2: Multiply 2 Digits 1

National Curriculum Objectives:

Mathematics Year 5: (5C6a) Multiply and divide numbers mentally drawing upon known facts
Mathematics Year 5: (5C7a) Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Create three area models using the given Base 10 and write the multiplication calculations.
Expected Create three area models using the given place value counters and write the multiplication calculations.
Greater Depth Create an area model and write the multiplication calculation. The answer must fit within the parameter given.

Questions 2, 5 and 8 (Reasoning)
Developing Find whether an area has been calculated correctly by using an area model. Includes an area model frame for support and no exchanges.
Expected Find whether an area has been calculated correctly by using an area model. Includes up to one exchange.
Greater Depth Prove that an area has not been calculated correctly by using an area model. Includes up to two exchanges and some use of zero as a place holder.

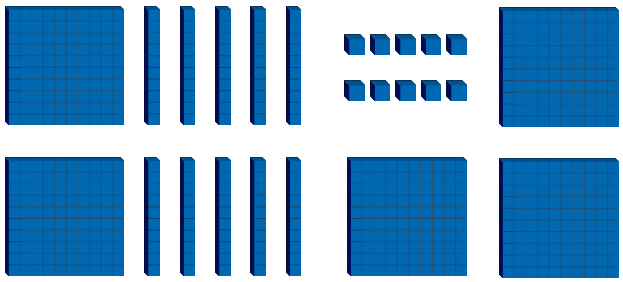
Questions 3, 6 and 9 (Reasoning)
Developing Explain the mistake when multiplying 2-digit numbers using an area model and Base 10. Includes no exchanges.
Expected Explain the mistake when multiplying 2-digit numbers using an area model and place value counters. Includes up to one exchange.
Greater Depth Explain the mistake by drawing an area model and counters when multiplying 2-digit numbers. Includes up to two exchanges and some use of zero as a place holder.

More Year 5 Multiplication and Division resources.

Did you like this resource? Don't forget to review it on our website.

Multiply 2 Digits 1

1a. Use the Base 10 to complete three area model calculations. Not all of the Base 10 is needed.



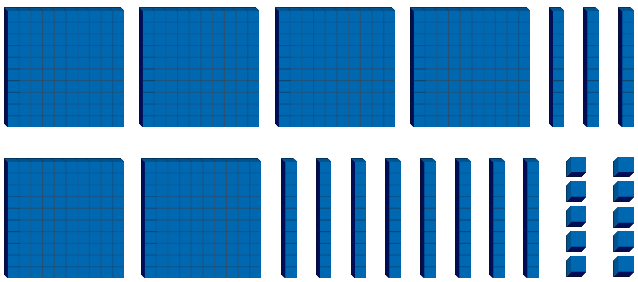
Write the calculations for the area models you have created.

D

PS

Multiply 2 Digits 1

1b. Use the Base 10 to complete three area model calculations. Not all of the Base 10 is needed.



Write the calculations for the area models you have created.

D

PS

2a. Ted buys 200m² of wallpaper for a wall measuring 12m x 13m.

	10	3
10		
2		

Has Ted bought enough wallpaper?
Prove it by completing the area model.

D

R

2b. Josie buys 1,200m² of turf for her garden that measures 31m x 41m.

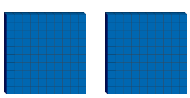
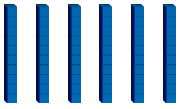
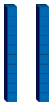
	40	1
30		
1		

Has Josie bought enough turf?
Prove it by completing the area model.

D

R

3a. Becky has made a mistake when using the area model.

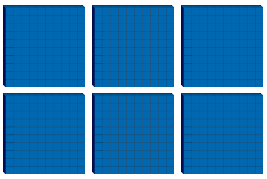
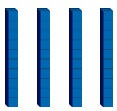
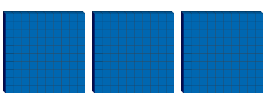
	20	3
20		
1		

Explain the mistake she has made.

D

R

3b. Nadim has made a mistake when using the area model.

	30	2
20		
1		

Explain the mistake he has made.

D

R

Multiply 2 Digits 1

Multiply 2 Digits 1

4a. Use the place value counters to complete three area model calculations. Not all of the counters are needed.

1 1 100 100 10 10 10 10
10 10 100 100 1 10 10 10
100 100 10 10 1 10 100 100
10 10 10 1 1 100 100 1
1 1 100 100 10 10 10 100

Write the calculations for the area models you have created.

E PS

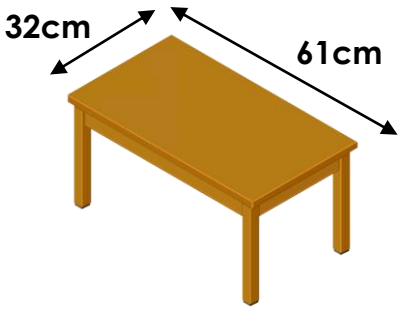
4b. Use the place value counters to complete three area model calculations. Not all of the counters are needed.

100 10 10 10 1 10 10 100
100 10 10 10 1 10 10 100
100 100 100 100 1 100 100 100
1 1 1 1 1 1 1 100
10 10 10 10 100 100 100 100

Write the calculations for the area models you have created.

E PS

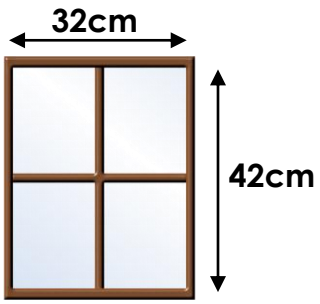
5a. Jane buys 2,000cm² of cloth for the table.



Has Jane bought enough cloth? Prove it using an area model.

E R

5b. Beth buys 1,000cm² of material to make a window blind.



Has Beth bought enough material? Prove it using an area model.

E R

6a. Grace has made a mistake when using the area model.

	40	2
20	100 100 100 100 100 100 100 100	10 10 10 10
4	10 10 10 10 10 10 10 10	1 1 1 1 1 1 1 1

Explain the mistake she has made.

E R

6b. Andrew has made a mistake when using the area model.

	10	5
20	100 100 100 100	10 10 10 10 10 10 10 10 10 10
3	10 10 10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Explain the mistake he has made.

E R

Multiply 2 Digits 1

Multiply 2 Digits 1

7a. Create an area model calculation with an answer between 1,102 and 1,375.

	50	
20	100 100 100 100 100 100 100 100 100 100	

Write the calculation for the area model you have created.

GD PS

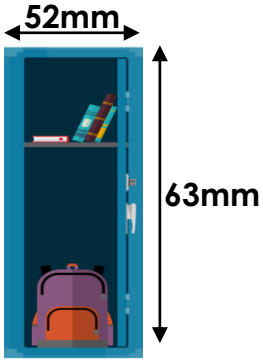
7b. Create an area model calculation with an answer between 1,705 and 1,904.

	80	
20	100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100	

Write the calculation for the area model you have created.

GD

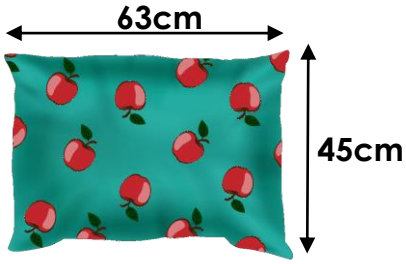
8a. Gail buys 3,000mm² of coloured paper for the back of her school locker.



How much more paper will Gail need? Prove it using an area model.

GD R

8b. Henry buys 2,500cm² of fleece to make a cushion cover.



How much more fleece will Henry need? Prove it using an area model.

GD R

9a. Rachel thinks the answer to the calculation 73 x 18 is 1,341.

	70	3
10		
8		

Explain her mistake using the area model.

GD R

9b. Michael thinks the answer to the calculation 63 x 23 is 1,448.

	60	3
20		
3		

Explain his mistake using the area model.

GD R

Reasoning and Problem Solving
Multiply 2 Digits 1

Developing

1a. Various answers, for example:
12 x 22 = 264, 12 x 31 = 372, 13 x 21 = 273

2a. Yes. Ted has bought 200m^2 and he only needs 12m x 13m = 156m^2

3a. Becky has calculated 10 x 20 in the part of the area model for 20 x 20.

Expected

4a. Various answers, for example:
34 x 13 = 442, 41 x 12 = 492, 24 x 31 = 744

5a. Yes. Jane has bought 2,000cm^2 and she only needs 32cm x 61cm = 1,952cm^2.

6a. Grace has calculated 2 x 40 in the part of the area model for 4 x 20.

Greater Depth

7a. Various answers, for example:
22 x 53 = 1,166

8a. Gail needs 276mm^2 because 52mm x 63mm = 3,276mm^2 and 3,276 – 3,000 = 276.

9a. Rachel has reversed the tens and ones digits. The answer is 1,314.

Reasoning and Problem Solving
Multiply 2 Digits 1

Developing

1b. Various answers, for example:
22 x 21 = 462, 31 x 21 = 651, 13 x 11 = 143

2b. No. Josie has bought 1,200m^2 but she needs 31m x 41m = 1,271m^2

3b. Nadim has used hundred squares instead of tens rods in the part of the area model for 1 x 30.

Expected

4b. Various answers, for example:
31 x 32 = 992, 43 x 12 = 516, 24 x 32 = 768

5b. No. Beth has bought 1,000cm^2 but she needs 32cm x 42cm = 1,344cm^2.

6b. Andrew has calculated 20 x 20 in the part of the area model for 20 x 10.

Greater Depth

7b. Various answers, for example:
22 x 82 = 1,804

8b. Henry needs 335cm^2 because 45cm x 63cm = 2,835cm^2 and 2,835 – 2,500 = 335.

9b. Michael has forgotten to add another one. The answer is 1,449.