

Catch-up for Year 6: Key skills from Year 5

Unit 1 Day 3: Multiply and divide by 10, 100 and 1000

Teach through the **PowerPoint slides**.



Children can then tackle the questions on the **Practice Sheet(s)**.
There might be a choice of either **Mild** (easier) or **Hot** (harder).
Answers are provided.



Children finding it tricky? Try giving **Extra Support**.



Have children mastered the topic?
A few questions to **Check their understanding**.
Answers are provided.

Practice Sheet Mild
Multiplying and dividing by 10 and 100

1. 34.6×10

2. 34.6×100

3. 6.74×10

4. 6.74×100

5. $483 \div 10$

6. $483 \div 100$

7. $56.1 \div 10$

8. 56.1×100

9. $83.4 \times \boxed{} = 834$

10. $83.4 \div \boxed{} = 8.34$

11. $47.2 \div \boxed{} = 4.72$

12. $47.2 \times \boxed{} = 4720$

Practice Sheet Hot
Multiplying and dividing by 10, 100 and 1000

1. 456.8×10

2. $4568 \div 10$

3. 2.76×10

4. $843 \div 100$

5. 47.3×100

6. $783 \div 100$

7. 45.62×100

8. $783.4 \div 10$

9. 45.74×1000

10. $3620 \div 1000$

11. $348.2 \times \boxed{} = 3482$

12. $34,820 \div \boxed{} = 34.82$

Challenge

Complete the following calculations.

$78.43 \times \boxed{} = 7843$

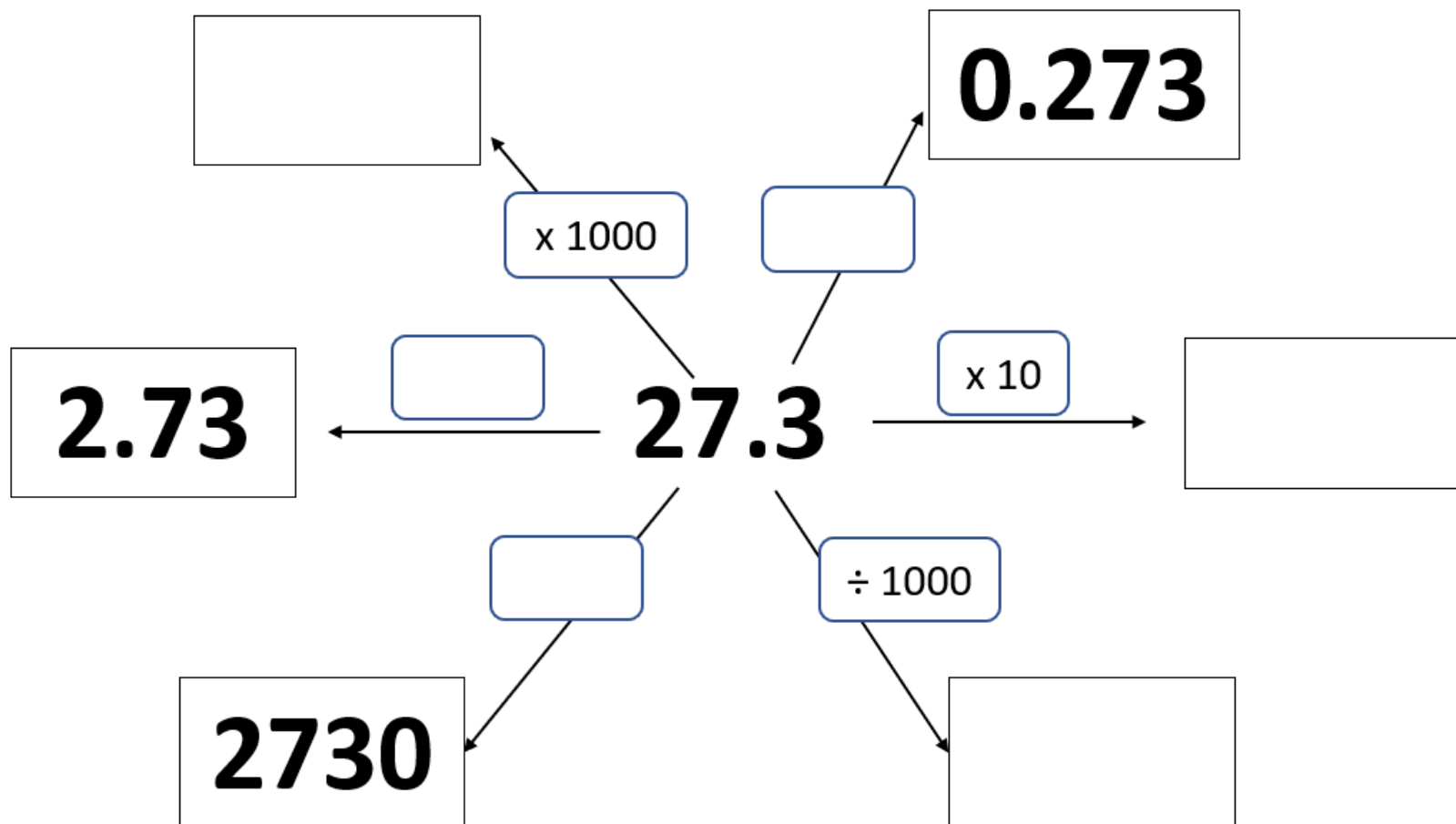
$78.43 \times \boxed{} = 78,430$

$6450 \div \boxed{} = 64.5$

$6450 \div \boxed{} = 6.45$

Extra Practice for All

Complete any empty boxes on this diagram. Watch out - they might be answers or operations...



Create a similar diagram for a partner to solve.

Practice Sheets Answers

Multiplying and dividing by 10 and 100 (mild)

1. $34.6 \times 10 = 346$

2. $34.6 \times 100 = 3460$

3. $6.74 \times 10 = 67.4$

4. $6.74 \times 100 = 674$

5. $483 \div 10 = 48.3$

6. $483 \div 100 = 4.83$

7. $56.1 \div 10 = 5.61$

8. $56.1 \times 10 = 561$

9. $83.4 \times 10 = 834$

10. $83.4 \div 10 = 8.34$

11. $47.2 \div 10 = 4.72$

12. $47.2 \times 100 = 4720$

Multiplying and dividing by 10, 100 and 1000 (hot)

1. $456.8 \times 10 = 4568$

2. $4568 \div 10 = 456.8$

3. $2.76 \times 10 = 27.6$

4. $843 \div 100 = 8.43$

5. $47.3 \times 100 = 4730$

6. $783 \div 100 = 7.83$

7. $45.62 \times 100 = 4562$

8. $783.4 \div 10 = 78.34$

9. $45.74 \times 1000 = 45740$

10. $3620 \div 1000 = 3.62$

11. $348.2 \times 10 = 3482$

12. $34,820 \div 1000 = 34.82$

Challenge

$78.43 \times 100 = 7843$

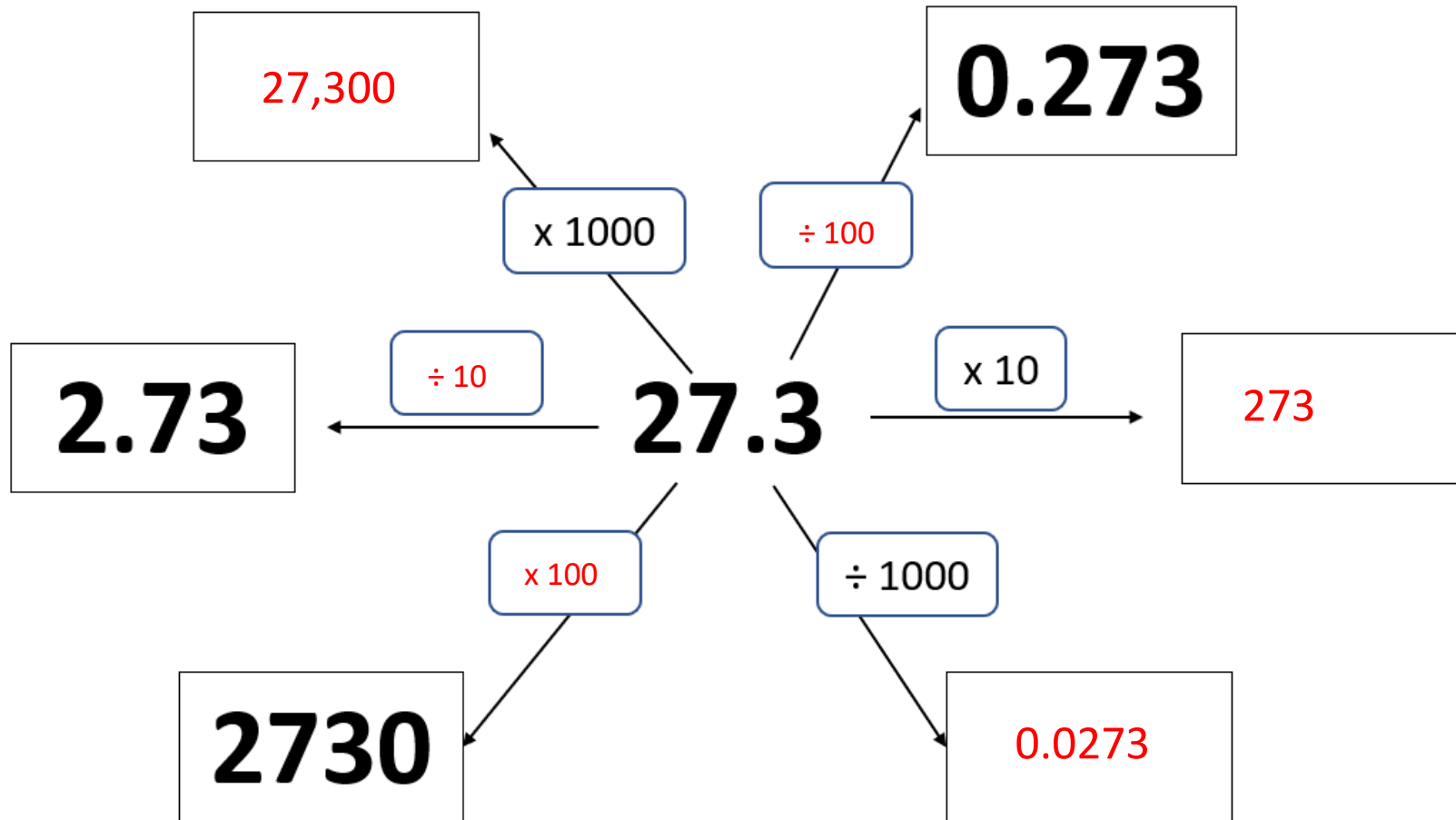
$78.43 \times 1000 = 78,430$

$6450 \div 100 = 64.5$

$6450 \div 1000 = 6.45$

Extra Practice for All Answers

Complete any empty boxes on this diagram. Watch out - they might be answers or operations...



Create a similar diagram for a partner to solve.

Extra Support

Left, left or right, right?

Focus of activity: Understanding place value in numbers with two decimal places; Beginning to multiply numbers with two decimal places by 100 and divide 3-digit numbers by 100.

Working together: conceptual understanding

- Give each child two fraction strips (see child instructions). Ask them to keep one strip whole and cut the second strip into tenths.
- Challenge them to cut one of the tenths into ten tiny pieces! Say that ideally the pieces should be equal in size, but this is very difficult to do in practice. *How many of these tiny pieces would make one whole strip?* Remind children that we call them hundredths. Write $\frac{1}{100}$ and 0.01 to show how we write one hundredth. *How many hundredths are in each tenth?*
- Ask children to use the strips and pieces to show 1.34. Sketch a place value grid and write 1.34 in it:

1s	0.1s $\frac{1}{10}$ s	0.01s $\frac{1}{100}$ s
1	3	4

- Discuss what each digit in the place value grid is worth, relating it to the fractions strips and pieces.
- Repeat for 1.48.
- Write 1 in the place value grid. *What do we get if we divide one into 100 pieces?* Write 0.01 in the place value grid. Point out how the digit 1 has moved two places to the right, and that we have put zeros in the 1s and 0.1s columns to show that there are no 1s or 0.1s. *So, when we divide by 100, digits move two places to the right.*

1s	0.1s $\frac{1}{10}$ s	0.01s $\frac{1}{100}$ s
1 0	0	1

- Add columns for 100s and 10s to the left of the place value grid. Write $341 \div 100$. Write in 341 in the grid. Underneath write 3.41 and point out how each digit has moved two places to the right. Discuss the value of each digit.
- Repeat for $725 \div 100$.
- Write 2.68×100 . Ask a child to write 2.68 in the place value grid. *What is 2 multiplied by 100?* Write 268 in the grid and point out how each digit has moved two places to the left.
- Repeat for 8.45×100 . *Eight point something times 100 giving an answer of eight hundred and something sounds about right. What could we do to get 845 back to 8.45 again?*

Up for a challenge?

Together write rules for multiplying by 10 and 100 and dividing by 10 and by 100.

Now it's the children's turn:

- Children write what numbers with two decimal places are represented by fraction strips. They record them in a place value grid and then multiply them by 100. They then divide 3-digit numbers by 100.
- Go round the group and mark their multiplication/divisions as they do them, e.g. initially after one example of each. Ask them what each digit is worth.

S-t-r-e-t-c-h:

If children cope well, ask them to multiply 0.25, 0.09 and 1.03 by 100 and divide 408, 27 and 360 by 100.

Things to remember

Remember that a digit has a different value according to its place in a number. Write 4.44. Point to each digit in turn and ask children what each digit is worth.

You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

Resources	Outcomes
<ul style="list-style-type: none">• Fraction strips (see child instructions)• Scissors• 100s, 10s, 1s, 0.1s and 0.01s place value grids (see child instructions)	<ol style="list-style-type: none">1. Children understand the value of each digit in a number with two decimal places.2. Children begin to multiply numbers with two decimal places by 100 and divide 3-digit numbers by 100.

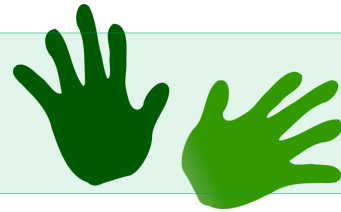
Extra Support

Left, left, right, right?

Work in pairs, but record numbers on your own place value grid

Things you will need:

- A place value grid
- A pencil



What to do:

- Look at the first group of fraction strips.
What number are they showing?
Write the number in your place value grid.
- Multiply this number by 100.
Write the answer in your place value grid.
- Repeat this for each fraction picture.

100s	10s	1s	0.1s	0.01s
1	6	1	6	1

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- Choose three of these numbers to divide by 100.
Write the number and the answer in your place value grid.

654

127

243

438

364

S-t-r-e-t-c-h:

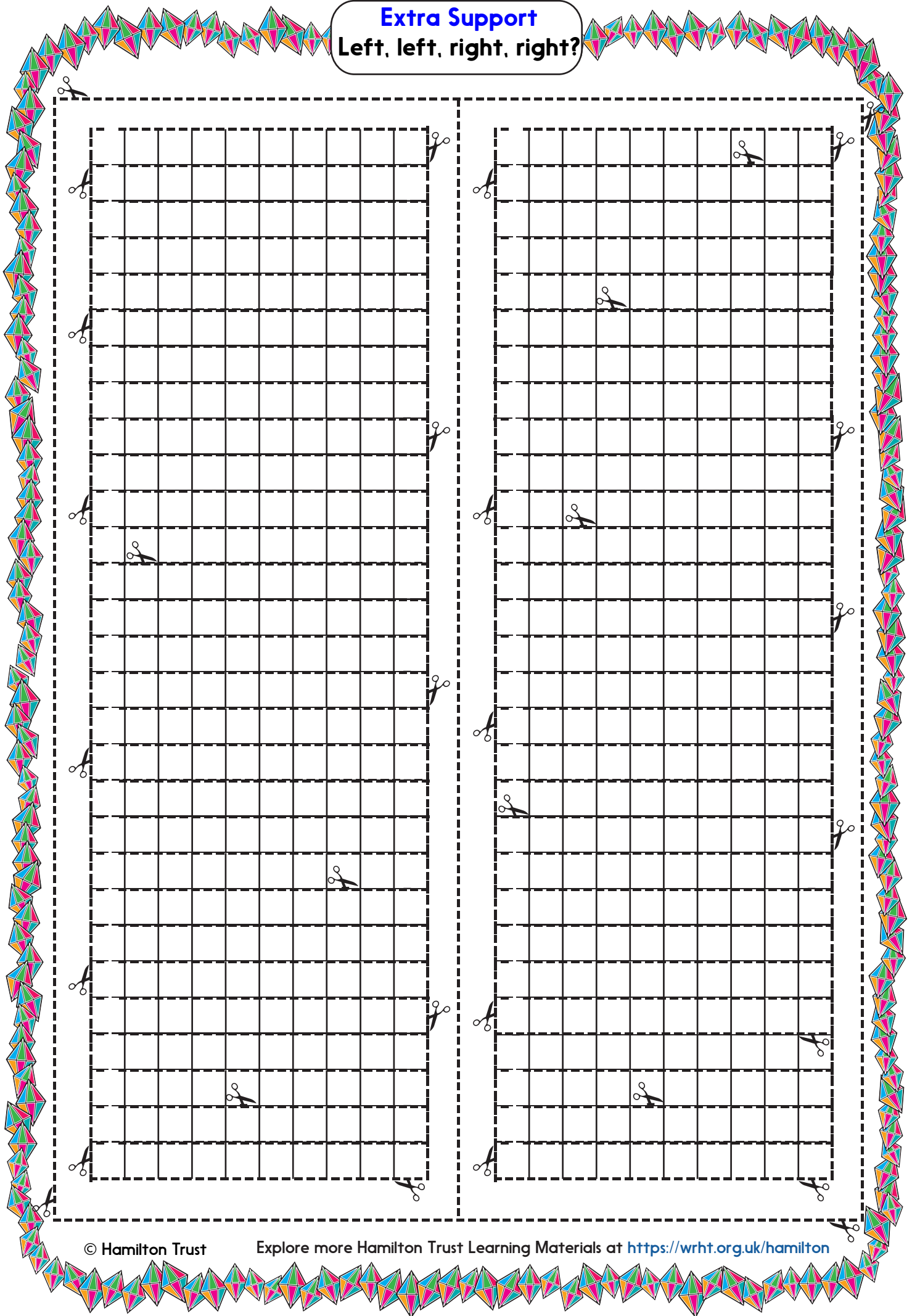
Multiply 0.25, 0.09 and 1.03 by 100.

Divide 408, 27 and 360 by 100.

Learning outcomes:

- I understand the value of each digit in a number with two decimal places.
- I am beginning to multiply numbers with two decimal places by 100 and divide 3-digit numbers by 100.

Extra Support
Left, left, right, right?



Extra Support

Left, left, right, right?

100s	10s	1s	•	0.1s	0.01s

Check your understanding

Questions

Divide 47,310 by 10 repeatedly until you get a number that is less than 100.
Write that number.

Fill the empty boxes:

$$0.15 = 1.5 \boxed{} \div 10 \quad 5209 = \boxed{} \times 100 \quad \boxed{} \div 100 = 4.7 \quad 10.08 = \boxed{} \div 1000$$

Write the next two numbers in each sequence.

0.41 4.1

2.05 20.5

43,020 4302

True or false?

$$4030 \div 100 = 43$$

$$1.09 \times 100 = 190$$

$$0.09 \times 10 = 0.9 \quad 7000 \div 1000 = 0.7$$

Fold here to hide answers

Check your understanding

Answers

Divide 47,310 by 10 repeatedly until you get a number that is less than 100.
Write that number. **47.31**

Each time the number is divided by 10, the digits move one place value column to the right:

47,310

4731

473.1

47.31

Fill the empty boxes:

$$0.15 = 1.5 \boxed{\div} 10 \quad 5209 = \boxed{52.09} \times 100 \quad \boxed{470} \div 100 = 4.7 \quad 10.08 = \boxed{10,080} \div 1000$$

Write the next two numbers in each sequence.

0.41 4.1 **41 410** (Multiplying by 10)

2.05 20.5 **205 2050** (Multiplying by 10)

43,020 4302 **430.2 43.02** (Dividing by 10)

True or false?

$$4030 \div 100 = 43$$

False – should be 40.3

$$1.09 \times 100 = 190$$

False – should be 109

$$0.09 \times 10 = 0.9$$

True

$$7000 \div 1000 = 0.7$$

False – should be 7