Reasoning and Problem Solving
Step 10: Multiples of 10, 100 and 1,000

National Curriculum Objectives:

Mathematics Year 5: (5C8a) Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Decide whether or not a statement is correct and explain why. Multiplying and dividing numbers with up to 3-digits by multiples of 10, 100 and 1,000.
Expected Decide whether or not a statement is correct and explain why. Multiplying and dividing numbers with up to 4-digits by multiples of 10, 100 and 1,000.
Greater Depth Decide whether or not a statement is correct and explain why. Multiplying and dividing numbers with up to 5-digits by multiples of 10, 100 and 1,000.

Questions 2, 5 and 8 (Problem Solving)
Developing Find the missing numbers and create calculations from given facts when multiplying and dividing numbers with up to 3-digits by multiples of 10, 100 and 1,000.
Expected Find the missing numbers and create calculations from given facts when multiplying and dividing numbers with up to 4-digits by multiples of 10, 100 and 1,000.
Greater Depth Find the missing numbers and create calculations from given facts when multiplying and dividing numbers with up to 5-digits by multiples of 10, 100 and 1,000.

Questions 3, 6 and 9 (Reasoning)
Developing Explain an error when multiplying and dividing numbers with up to 3-digits by Multiples of 10, 100 and 1,000.
Expected Explain when multiplying and dividing numbers with up to 4-digits by multiples of 10, 100 and 1,000.
Greater Depth Explain an when multiplying and dividing numbers with up to 5-digits by multiples of 10, 100 and 1,000.

More resources which follow the same small steps as White Rose.

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

Multiples of 10, 100 and 1,000

1a. Milly is using 4 x 2 = 8 to solve other calculations.

I think that 400 x 2 will give the same answer as 20 x 4.

Is she correct? Explain how you know.

D R

1b. Joseph is using 3 x 4 = 12 to solve other calculations.

I think that 300 x 4 will give the same answer as 40 x 3.

Is he correct? Explain how you know.

D R

2a. Use the fact 840 ÷ 12 = 70 to find the missing numbers in the calculations below.

840 ÷ ☐ = 7

7 x ☐ = 84

84 ÷ ☐ = 7

Write two more number sentences using this fact.

D PS

2b. Use the fact 510 ÷ 30 = 17 to find the missing numbers in the calculations below.

51 ÷ ☐ = 17

3 x ☐ = 510

510 ÷ ☐ = 170

Write two more number sentences using this fact.

D PS

3a.

I think that 6 x 500 is bigger than 50 x 60.

Sammy

Laura

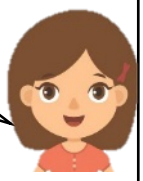
I think that 50 x 60 is bigger than 6 x 500.

Who is correct? How do you know?

D R

3b.

I think that 11 x 250 is bigger than 110 x 25.



Jodie

Louis

I think that 110 x 25 is bigger than 11 x 250.

Who is correct? How do you know?

D R

4a. Hafsa is using 45 x 3 = 135 to solve other calculations.

I think that 450 x 3 will give the same answer as 45 x 300. They both equal 1,350.

Is she correct? Explain how you know.

E R

4b. Jake is using 23 x 4 = 92 to solve other calculations.

I think that 23 x 40 will give the same answer as 2,300 x 4. They both equal 9,200.

Is he correct? Explain how you know.

E R

5a. Use the fact 4,060 ÷ 20 = 203 to find the missing numbers in the calculations below.

4,060	÷	☐	=	2,030
203	x	☐	=	4,060
406	÷	☐	=	203

Write two more number sentences using this fact.

E PS

5b. Use the fact 5,400 ÷ 30 = 180 to find the missing numbers in the calculations below.

540	÷	☐	=	18
18	x	☐	=	54
5,400	÷	☐	=	18

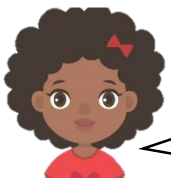
Write two more number sentences using this fact.

E PS

6a.

I think that 120 x 30 is bigger than 1,200 x 3.

Ben



Lila

I think that 1,200 x 3 is bigger than 12 x 300.

Who is correct? How do you know?

E R

6b.

I think that 3 x 2,300 is bigger than 230 x 30.

Suki

Ryan

I think that 230 x 30 is bigger than 3 x 2,300.

Who is correct? How do you know?

E R

7a. Ella is using 32 x 3 = 96 to solve other calculations.

I think that 320 x 300 will give the same answer as 32,000 x 3. They both equal 96,000.

Is she correct? Explain how you know.

GD R

Multiples of 10, 100 and 1,000

7b. Julian is using 41 x 2 = 82 to solve other calculations.

I think that 41,000 x 2 will give the same answer as 410 x 20. They both equal 82,000.

Is he correct? Explain how you know.

GD R

8a. Find the missing numbers in the calculations below using the fact 2,130 ÷ 30 = 71.

213	÷		=	71
30	x		=	21,300
21,300	÷		=	300

Write two more number sentences using this fact.

GD PS

8b. Find the missing numbers in the calculations below using the fact 6,480 ÷ 80 = 81.

648	÷		=	81
80	x		=	64,800
64,800	÷		=	800

Write two more number sentences using this fact.

GD PS

9a.

I think that 15,000 x 3 is bigger than 150 x 300.

Ali

Sara

I think that 150 x 300 is bigger than 15,000 x 3.

Who is correct? How do you know?

GD R

9b.

I think that 22,000 x 4 is bigger than 220 x 400.

Ruby

Alex

I think that 220 x 400 is bigger than 22,000 x 4.

Who is correct? How do you know?

GD R

Reasoning and Problem Solving
Multiples of 10, 100 and 1,000

Developing

1a. No. 400 x 2 = 800 and 20 x 4 = 80

2a. 120, 12 and 12. Various answers for other number sentences, for example: 70 x 120 = 8,400, 8,400 ÷ 12 = 700 and 840 ÷ 7 = 120.

3a. Sammy and Laura are both wrong. Both 6 x 500 and 50 x 60 equal 3,000.

Expected

4a. No. 450 x 3 = 1,350 but 45 x 300 = 13,500

5a. 2, 20 and 2. Various answers for other number sentences, for example: 200 x 203 = 40,600, 4,060 ÷ 2,030 = 2 and 4,060 ÷ 203 = 20.

6a. Lila and Ben are both wrong. Both 120 x 30 and 1,200 x 3 equal 3,600.

Greater Depth

7a. Yes. Both sums equal 96,000.

8a. 3, 710 and 71. Various answers for other number sentences, for example: 213 ÷ 71 = 3, 30 x 710 = 21,700 and 3 x 71 = 213.

9a. Both Ali and Sara are wrong. 15,000 x 3 and 150 x 300 both equal 45,000.

Reasoning and Problem Solving
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Developing

1b. No. 300 x 4 = 1,200 and 40 x 3 = 120

2b. 3, 170 and 3. Various answers for other number sentences, for example: 30 x 17 = 510, 5,100 ÷ 30 = 170 and 510 ÷ 17 = 30.

3b. Jodie and Louis are both wrong. Both 11 x 250 and 110 x 25 equal 2,750.

Expected

4b. No. 2,300 x 4 = 9,200 but 23 x 40 = 920

5b. 30, 3 and 300. Various answers for other number sentences, for example: 5,400 ÷ 18 = 300, 30 x 180 = 5,400 and 5,400 ÷ 180 = 30.

6b. Both Suki and Ryan are wrong. 3 x 2,300 and 230 x 30 both equal 6,900.

Greater Depth

7b. No. 41,000 x 2 = 81,000 but 410 x 20 = 8,200.

8b. 8, 810, 81. Various answers for other number sentences, for example: 80 x 81 = 6,480, 6,480 ÷ 81 = 80 and 800 x 81 = 64,800.

9b. Both Ruby and Alex are wrong. 22,000 x 4 and 220 x 400 both equal 88,000.