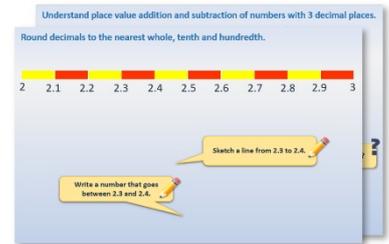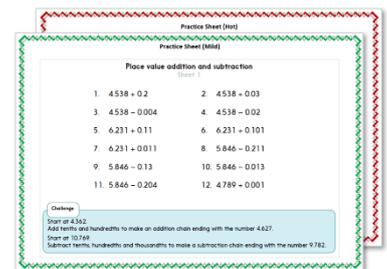# Week 6, Day 2

Use mental strategies to divide by 5, 20, 6, 4 and 8.

Each day covers one maths topic. It should take you about 1 hour or just a little more.
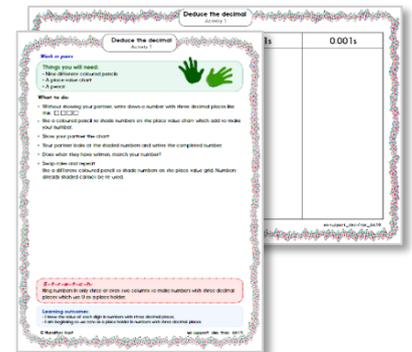
1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.

2. Tackle the questions on the **Practice Sheet**.
   There might be a choice of either Mild (easier) or Hot (harder)!
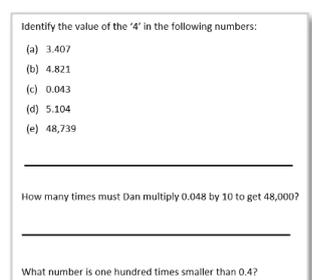   Check the answers.

3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**

4. Think you've cracked it? Whizzed through the Practice Sheets?
   Have a go at the **Investigation**…

5. Have I mastered the topic? A few questions to **Check your understanding**.
   Fold the page to hide the answers!

Learning Reminders

Use mental strategies to divide by 5, 20, 6, 4 and 8.

$$240 \div 10 = 24$$

$$240 \div 5 = 48$$

We can divide numbers by 5 by **dividing by 10, and then doubling.**
We can <u>double</u> the answer to 240 ÷ 10 to find 240 ÷ 5.
If a number is split into smaller groups, there will be more groups, so dividing by a smaller number gives a bigger answer.

$$240 \div 20 = 12$$

We can divide numbers by 20 by **dividing by 10, and then halving.**
We can <u>halve</u> the answer to 240 ÷ 10 to find 240 ÷ 10 .
If a number is split into bigger groups, there will be fewer groups, so dividing by a bigger number gives a smaller answer.

Learning Reminders

Use mental strategies to divide by 5, 20, 6, 4 and 8.

27 ÷ 3 = 9 so 270 ÷ 3 = 90.

270 ÷ 6 =

We can use 270 ÷ 3 = 90 to work out the answer to 270 ÷ 6.

We need to **halve** the answer to 270 ÷ 3.
270 ÷ 3 = 90.
270 ÷ 6 = 45.

To find 280 ÷ 4.
Halve twice.

280 ÷ 8 =

We can use 280 ÷ 4 = 70 to work out the answer to 280 ÷ 8.

We need to **halve** the answer to 280 ÷ 4.
280 ÷ 4 = 70.
280 ÷ 8 = 35.

Practice Sheet Mild
Mental strategies for division

1.	360 ÷ 10	360 ÷ 20	360 ÷ 5
2.	180 ÷ 10	180 ÷ 20	180 ÷ 5
3.	420 ÷ 10	420 ÷ 20	420 ÷ 5
4.	540 ÷ 10	540 ÷ 20	540 ÷ 5
5.	150 ÷ 3	150 ÷ 6	
6.	210 ÷ 3	210 ÷ 6	
7.	450 ÷ 3	450 ÷ 6	
8.	200 ÷ 2	200 ÷ 4	200 ÷ 8
9.	288 ÷ 2	288 ÷ 4	288 ÷ 8
10.	216 ÷ 2	216 ÷ 4	216 ÷ 8

Practice Sheet Hot
Mental strategies for division

1. $780 \div 10$ $780 \div 20$ $780 \div 5$

2. $430 \div 10$ $430 \div 20$ $430 \div 5$

3. $370 \div 10$ $370 \div 20$ $370 \div 5$

4. $270 \div 3$ $270 \div 6$

5. $312 \div 3$ $312 \div 6$

6. $123 \div 3$ $123 \div 6$

7. $336 \div 2$ $336 \div 4$ $336 \div 8$

8. $656 \div 2$ $656 \div 4$ $656 \div 8$

9. $172 \div 2$ $172 \div 4$ $172 \div 8$

10. $260 \div 2$ $260 \div 4$ $260 \div 8$

Challenge

Which of these three statements is true? Estimate first then use mental strategies to check.

A. $240 \div 6 < 480 \div 12$ B. $240 \div 6 > 120 \div 3$ C. $240 \div 6 < 360 \div 2$

Practice Sheets Answers

Mental strategies for division (mild)

1.	360 ÷ 10 = 36	360 ÷ 20 = 18	360 ÷ 5 = 72
2.	180 ÷ 10 = 18	180 ÷ 20 = 9	180 ÷ 5 = 36
3.	420 ÷ 10 = 42	420 ÷ 20 = 21	420 ÷ 5 = 84
4.	540 ÷ 10 = 54	540 ÷ 20 = 27	540 ÷ 5 = 108
5.	150 ÷ 3 = 50	150 ÷ 6 = 25	
6.	210 ÷ 3 = 70	210 ÷ 6 = 35	
7.	450 ÷ 3 = 150	450 ÷ 6 = 75	
8.	200 ÷ 2 = 100	200 ÷ 4 = 50	200 ÷ 8 = 25
9.	288 ÷ 2 = 144	288 ÷ 4 = 72	288 ÷ 8 = 36
10.	216 ÷ 2 = 108	216 ÷ 4 = 54	216 ÷ 8 = 27

Mental strategies for division (hot)

1.	780 ÷ 10 = 78	780 ÷ 20 = 39	780 ÷ 5 = 156
2.	430 ÷ 10 = 43	430 ÷ 20 = 21.5	430 ÷ 5 = 86
3.	370 ÷ 10 = 37	370 ÷ 20 = 18.5	370 ÷ 5 = 74
4.	270 ÷ 3 = 90	270 ÷ 6 = 45	
5.	312 ÷ 3 = 104	312 ÷ 6 = 52	
6.	123 ÷ 3 = 41	123 ÷ 6 = 20.5	
7.	336 ÷ 2 = 168	336 ÷ 4 = 84	336 ÷ 8 = 42
8.	656 ÷ 2 = 328	656 ÷ 4 = 164	656 ÷ 8 = 82
9.	172 ÷ 2 = 86	172 ÷ 4 = 43	172 ÷ 8 = 21.5
10.	260 ÷ 2 = 130	260 ÷ 4 = 65	260 ÷ 8 = 32.5

Challenge

A is false as 240 ÷ 6 ≠ 480 ÷ 12   B is false as 240 ÷ 6 ≠ 120 ÷ 3.

C is true. 240 ÷ 6 = 40 and 360 ÷ 2 = 180

A Bit Stuck?
Multiplying 10s and 100s by 1-digit numbers

Section 1

6 × 2 = ☐   6 × 20 = ☐   ☐ ÷ 6 = 20

3 × 5 = ☐   3 × 50 = ☐   ☐ ÷ 3 = 50

4 × 9 = ☐   4 × 90 = ☐   ☐ ÷ 4 = 90

2 × 2 = ☐   2 × 200 = ☐   ☐ ÷ 2 = 200

9 × 3 = ☐   9 × 300 = ☐   ☐ ÷ 9 = 300

5 × 4 = ☐   5 × 400 = ☐   ☐ ÷ 5 = 400

Section 2

4 × 4 = ☐   4 × 40 = ☐   ☐ ÷ 4 = 40

3 × ☐ = 21   3 × ☐ = 2100   2100 ÷ 3 = ☐

6 × 8 = ☐   6 × 80 = ☐   ☐ ÷ 6 = 80

☐ × 6 = 54   ☐ × 600 = 5400   5400 ÷ ☐ = 600

7 × 9 = ☐   7 × 900 = ☐   ☐ ÷ 7 = 900

8 × ☐ = 24   8 × ☐ = 240   240 ÷ 8 = ☐

A Bit Stuck? Answers

Multiplying 10s and 100s by 1-digit numbers

Section 1

6 × 2 = 12	6 × 20 = 120	120 ÷ 6 = 20
3 × 5 = 15	3 × 50 = 150	150 ÷ 3 = 50
4 × 9 = 36	4 × 90 = 360	360 ÷ 4 = 90
2 × 2 = 4	2 × 200 = 400	400 ÷ 2 = 200
9 × 3 = 27	9 × 300 = 2700	2700 ÷ 9 = 300
5 × 4 = 20	5 × 400 = 2000	2000 ÷ 5 = 400

Section 2

4 × 4 = 16	4 × 40 = 160	160 ÷ 4 = 40
3 × 7 = 21	3 × 700 = 2100	2100 ÷ 3 = 700
6 × 8 = 48	6 × 80 = 480	480 ÷ 6 = 80
9 × 6 = 54	9 × 600 = 5400	5400 ÷ 9 = 600
7 × 9 = 63	7 × 900 = 6300	6300 ÷ 7 = 900
8 × 3 = 24	8 × 30 = 240	240 ÷ 8 = 30

Investigation
Exploring mental methods for division

360

420

780

660

- Choose one of these numbers.

- Divide the number by...

5 **20** **6** **4** **8**

- What strategies did you use? Write a sentence or two to explain for each.

- Repeat for each of the other numbers.

- Which did you find the easiest? Can you explain why?
  Write an even easier question to solve using the same strategies.

- Which did you find the hardest? Can you explain why?
  Write an even harder question to solve using the same strategies.

Challenge

- Make two 3-digit multiples of 10 in which the first two digits are reversed, e.g. Choose 3 and 6; the numbers would be 360 and 630.
- Try dividing each number by 5, 20, 6, 4 and 8, using mental strategies.
- Which number did you find easier to work with? Why?
- Repeat for another pair of 3-digit numbers

Explore more Hamilton Trust Learning Materials at https://wrht.org.uk/hamilton

Check your understanding
Questions

If 42 × 10 is 420, calculate 42 × 5, 42 × 20 and 42 × 19.

_____

Find double 31, then use the answer to find 31 × 4 and 31 × 8.

_____

If 350 ÷ 5 is 70, calculate 350 ÷ 10, 350 ÷ 20 and 350 ÷ 70.
So, what is 350 ÷ 2.5?

Fold here to hide answers

Check your understanding
Answers

If 42 × 10 is 420, calculate 42 × 5, 42 × 20 and 42 × 19.
Answers are 210, 840 and 798 respectively.

_____

Find double 31 then use the answer to find 31 × 4 and 31 × 8.
Answers are 62, 124 and 248 respectively.

_____

If 350 ÷ 5 is 70, calculate 350 ÷ 10, 350 ÷ 20 and 350 ÷ 70.
Answers are 35, 17.5 and 5 respectively.
So, what is 350 ÷ 2.5? 140.