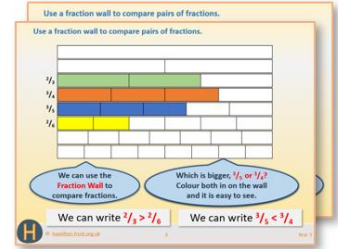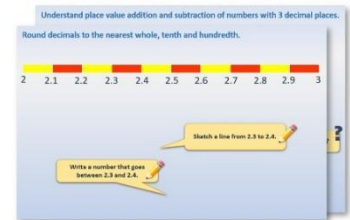# Week 11, Day 1
Multiply and divide numbers mentally drawing on known facts.

Each day covers one maths topic. It should take you about 1 hour or just a little more.
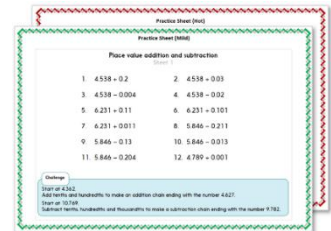
1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.
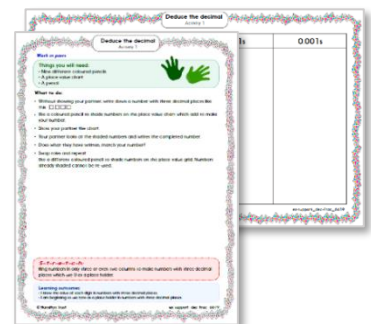
    OR start by carefully reading through the **Learning Reminders**.

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**…

Learning Reminders

Multiply and divide numbers mentally drawing on known facts.

$10 \times 46 = 460$

We can use this fact to work out other facts mentally.

$5 \times 46 = 230$

That's half of 230.

$20 \times 46 = 920$

That's double 230.

$15 \times 46 = 690$

That's (10 x 46) + (5 x 46).

$21 \times 46 = 966$

That's (20 x 46) + 46.

Learning Reminders

Multiply and divide numbers mentally drawing on known facts.

$20 \times 6 = 120$

$30 \times 6 = 180$

$20 \times 7 =$

$30 \times 7 =$

$20 \times 8 =$

$30 \times 8 =$

> We can use times tables facts and place value to find multiples of 10.
> For example we know 2 x 6 = 12, so 20 x 6 = 120.

> We know 3 x 6 = 180, so 30 x 6 = 180.

> Check the other answers in this way.

Answers

$2 \times 7 = 14$ so $20 \times 7 = 140$

$3 \times 7 = 21$ so $30 \times 7 = 210$

$2 \times 8 = 16$ so $20 \times 8 = 160$

$3 \times 8 = 24$ so $30 \times 8 = 240$

Learning Reminders

Multiply and divide numbers mentally drawing on known facts.

We can use these answers to help with division.

$20 \times 6 = 120$

$30 \times 6 = 180$

$123 \div 6$

We know that $20 \times 6 = 120$ so $123 \div 6 = 20$ r 3 or $20\frac{1}{2}$.

$20 \times 7 = 140$

$30 \times 7 = 210$

$244 \div 8$

We know that $30 \times 8 = 240$ so $244 \div 8 = 30$ r 4 or $30\frac{1}{2}$.

$20 \times 8 = 160$

$154 \div 7$

We know that $20 \times 7 = 140$. 154 is 14 more than 140 so $154 \div 7 = 22$.

$30 \times 8 = 240$

Using known facts to help with divisions

Work out 10 × 6, 20 × 6, 30 × 6, 10 × 7, 20 × 7, 30 × 7, 10 × 8, 20 × 8 and 30 × 8.

Use these facts to help calculate the exact answers to these divisions. Write remainders as fractions.

1.   69 ÷ 6
2.   129 ÷ 6
3.   77 ÷ 7
4.   147 ÷ 7
5.   88 ÷ 8
6.   164 ÷ 8
7.   122 ÷ 6
8.   242 ÷ 8
9.   209 ÷ 7
10. 183 ÷ 6

Make up your own divisions that you can solve using the nine multiplication facts that you found at the beginning.

Practice Sheet Hot
Using known facts to help with divisions

Work out 20 × 6, 30 × 6, 40 × 6, 20 × 7, 30 × 7, 40 × 7, 20 × 8, 30 × 8 and 40 × 8.

Use these facts to help calculate the exact answers to these divisions. Write remainders as fractions.

1. 129 ÷ 6
2. 147 ÷ 7
3. 164 ÷ 8
4. 122 ÷ 6
5. 162 ÷ 8
6. 166 ÷ 8
7. 183 ÷ 6
8. 224 ÷ 7
9. 244 ÷ 8
10. 255 ÷ 6
11. 287 ÷ 7
12. 332 ÷ 8

Make up your own divisions that you can solve using the nine multiplication facts that you found at the beginning.

Practice Sheets Answers

Using known facts to help with divisions (mild)

$10 \times 6 = 60$ $20 \times 6 = 120$ $30 \times 6 = 180$
$10 \times 7 = 70$ $20 \times 7 = 140$ $30 \times 7 = 210$
$10 \times 8 = 80$ $20 \times 8 = 160$ $30 \times 8 = 240$

1. $69 \div 6 = 11\frac{3}{6}$ or $11\frac{1}{2}$

2. $129 \div 6 = 21\frac{3}{6}$ or $21\frac{1}{2}$

3. $77 \div 7 = 11$

4. $147 \div 7 = 21$

5. $88 \div 8 = 11$

6. $164 \div 8 = 20\frac{4}{8}$ or $20\frac{1}{2}$

7. $122 \div 6 = 20\frac{2}{6}$ or $20\frac{1}{3}$

8. $242 \div 8 = 30\frac{2}{8}$ or $30\frac{1}{4}$

9. $209 \div 7 = 29\frac{6}{7}$

10. $183 \div 6 = 30\frac{3}{6}$ or $30\frac{1}{2}$

Using known facts to help with divisions (hot)

$20 \times 6 = 120$ $30 \times 6 = 180$ $40 \times 6 = 240$
$20 \times 7 = 140$ $30 \times 7 = 210$ $40 \times 7 = 280$
$20 \times 8 = 160$ $30 \times 8 = 240$ $40 \times 8 = 320$

1. $129 \div 6 = 21\frac{3}{6}$ or $21\frac{1}{2}$

2. $147 \div 7 = 21$

3. $164 \div 8 = 20\frac{4}{8}$ or $20\frac{1}{2}$

4. $122 \div 6 = 20\frac{2}{6}$ or $20\frac{1}{3}$

5. $162 \div 8 = 20\frac{2}{8}$ or $20\frac{1}{4}$

6. $166 \div 8 = 20\frac{6}{8}$ or $20\frac{3}{4}$

7. $183 \div 6 = 30\frac{3}{6}$ or $30\frac{1}{2}$

8. $224 \div 7 = 32$

9. $244 \div 8 = 30\frac{4}{8}$ or $30\frac{1}{2}$

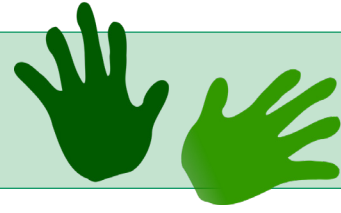10. $255 \div 6 = 42\frac{3}{6}$ or $42\frac{1}{2}$

11. $287 \div 7 = 41$

12. $332 \div 8 = 41\frac{4}{8}$ or $41\frac{1}{2}$

Work in pairs

**Things you will need:**
• A set of 1 to 10 cards

What to do:

• Shuffle a pack of 1 to 10 cards. Place face down.

• Turn over the cards one at a time and multiply by 60. Use the matching 6x table fact and multiply by 10. The first person to say the correct answer keeps the card.

• How many cards did you each win?

• Repeat for multiplying by 80.

S-t-r-e-t-c-h:
Write some division facts for the 60 times table.

Learning outcomes:
• I know most facts for the 6 and 8 times tables by heart.
• I can use knowledge of the 6 and 8 times tables and place value to work out multiples of 60 and 80.
• I am beginning to use division facts for the 6 times table to work out division facts for multiples of 60.
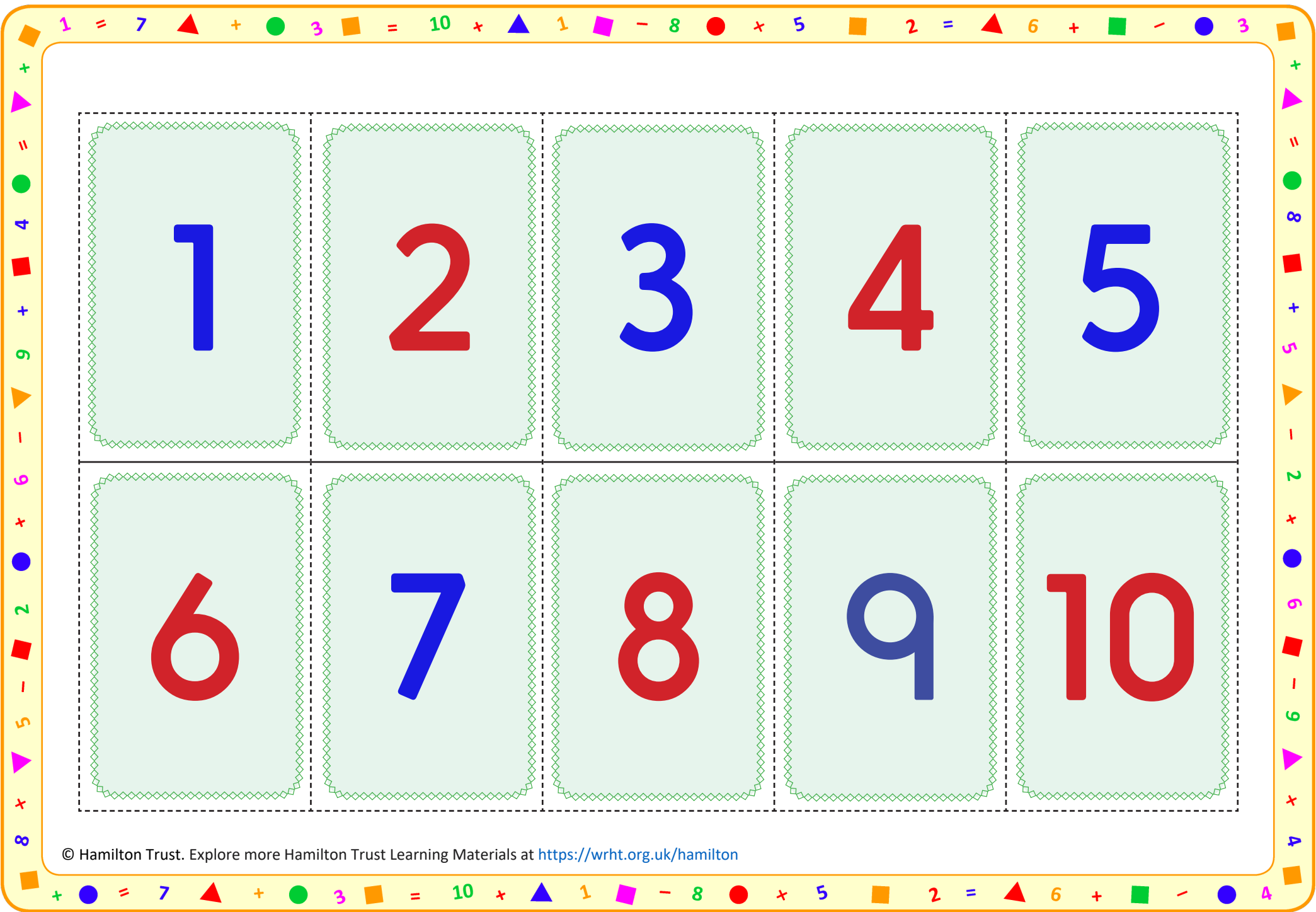
1	2	3	4	5
6	7	8	9	10

Investigation
Remaining Remainders

- Solve these questions mentally, writing any remainders as fractions

| 25 ÷ 2 | 37 ÷ 4 | 56 ÷ 5 | 301 ÷ 3 | 631 ÷ 6 | 91 ÷ 5 |

- What do you notice about the answers?

- Write four more divisions that have a similar result.

- Now try these:

| 27 ÷ 4 | 38 ÷ 5 | 153 ÷ 5 | 603 ÷ 6 | 87 ÷ 7 |

- What do you notice about the answers?

- Write four more divisions that have a similar result.

Can you find a question that gives this result when dividing by 2 or by 3? Why not?

Challenge

Now find some division questions that give a remainder of 5. What numbers will you have to avoid dividing by this time?