# Week 12, Day 1
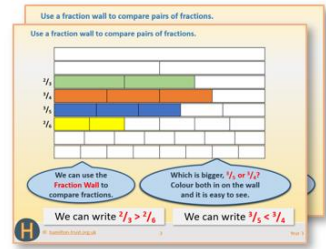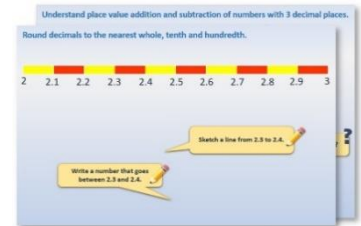## Find common multiples and common factors.
**Each day covers one maths topic.  It should take you about 1 hour or just a little more.**
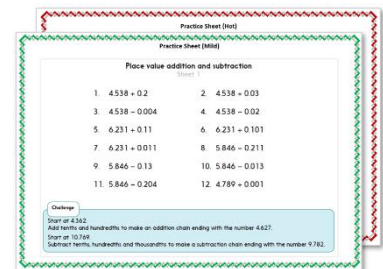
1.  If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.

    

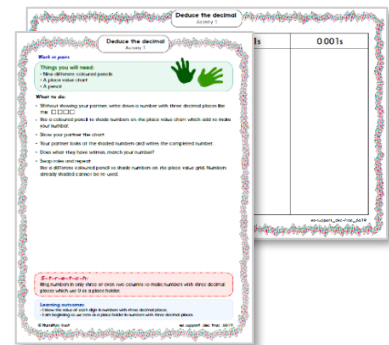    OR start by carefully reading through the **Learning Reminders**.

    

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

**Find common multiples and common factors.**

Let's revise **multiples** and **factors.**

What numbers divide into 24 exactly?
Write as many as you can.

24 is a **multiple** of 1, 2, 3, 4, 6, 8, 12 and 24.
These numbers are called its **factors.**
We can put them in pairs.

4 x 6 = 24
3 x 8 = 24
2 x 12 = 24
1 x 24 = 24

Remember to include 1 and the number itself!

# Learning Reminders

**Find common multiples and common factors.**

**28**

1, 2, 4, 7, 14 and 28 all divide into 28 exactly.

4 x 7 = 28
2 x 14 = 28
1 x 28 = 28

Although 28 is a bigger number than 24, it does not have as many factors as 24!

1, 2 and 4 are **common factors** of both 24 and 28.

# Learning Reminders

## Find common multiples and common factors.

Write as many **factors** as you can for each of these numbers.

**12**

**20**

**13**

12: 1, 2, 3, 4, 6 and 12.

20: 1, 2, 4, 5, 10 and 20.

13: 1 and 13. 13 is a **prime number** as it only has 2 factors: itself and 1.

## Practice Sheet Mild
## Common multiples and factors

Write a common multiple of
each pair of numbers

1. 2 and 5
2. 3 and 4
3. 5 and 6
4. 5 and 10
5. 6 and 9
6. 5 and 12

Write a list of factors each pair
of numbers have in common

1. 12 and 15
2. 15 and 30
3. 20 and 30
4. 16 and 24
5. 15 and 21
6. 18 and 24

# Practice Sheet Hot
## Common multiples and factors

**Write a common multiple of each pair of numbers**

1. 2 and 5
2. 3 and 4
3. 5 and 6
4. 5 and 10
5. 6 and 9
6. 5 and 12
7. 6 and 8
8. 7 and 8
9. 3 and 5
10. 8 and 12

**Write a list of factors each pair of numbers have in common**

1. 12 and 15
2. 15 and 30
3. 20 and 30
4. 16 and 24
5. 15 and 21
6. 18 and 24
7. 42 and 56
8. 24 and 30
9. 32 and 48
10. 24 and 36

**Challenge**

Use dice or place value cards to create two 2-digit numbers. List any factors that these numbers have in common (other than 1).

# Place Value Cards (sheet 1)

| | | |
|---|---|---|
| 1 0 | 6 0 | 1 |
| 2 0 | 7 0 | 2 |
| 3 0 | 8 0 | 3 |
| 4 0 | 9 0 | 4 |
| 5 0 | | 5 |

6

7

8

9
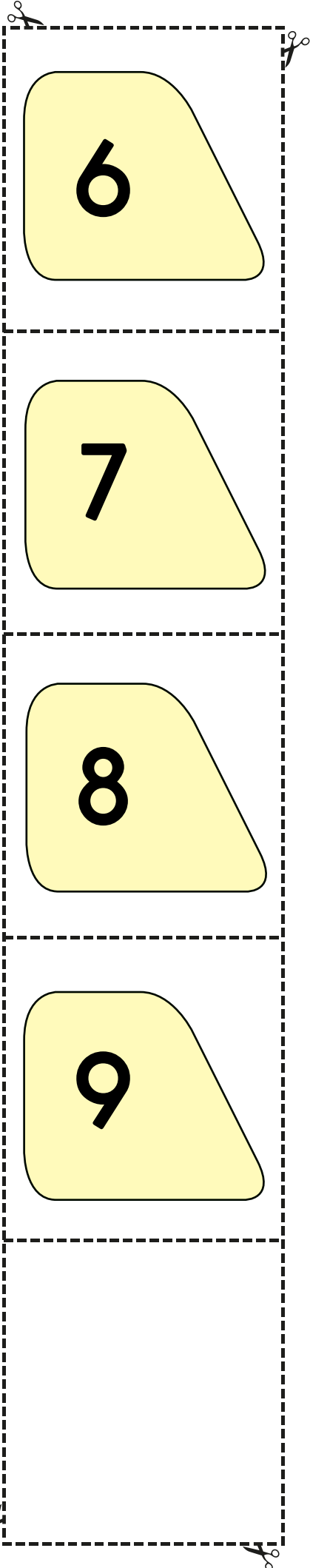
# Practice Sheets Answers
## Multiplication and division

**Common multiples and factors (mild)**

Common multiples   ( ◯ = LCM)
1. (10) 20, 30, etc
2. (12) 24, 36, etc
3. (30) 60, 90, etc
4. (10) 20, 30, etc
5. (18) 36, 54, etc
6. (60) 120, 180, etc

Common factors   ( ◯ = HCF)
1. 1, (3)
2. 1, 3, 5, (15)
3. 1, 2, 5, (10)
4. 1, 2, 4, (8)
5. 1, (3)
6. 1, 2, 3, (6)

**Common multiples and factors (hot)**

Common multiples   ( ◯ = LCM)
1. (10) 20, 30, etc
2. (12) 24, 36, etc
3. (30) 60, 90, etc
4. (10) 20, 30, etc
5. (18) 36, 54, etc
6. (60) 120, 180, etc
7. (24) 48, 72, etc
8. (56) 112, 168, etc
9. (15) 30, 45, etc
10. (24) 48, 72, etc

Common factors   ( ◯ = HCF)
1. 1, (3)
2. 1, 3, 5, (15)
3. 1, 2, 5, (10)
4. 1, 2, 4, (8)
5. 1, (3)
6. 1, 2, 3, (6)
7. 1, 2, 7, (14)
8. 1, 2, 3, (6)
9. 1, 2, 4, 8, (16)
10. 1, 2, 3, 4, 6, (12)

**Challenge**

e.g. 42 and 91. Both have 7 as a factor.
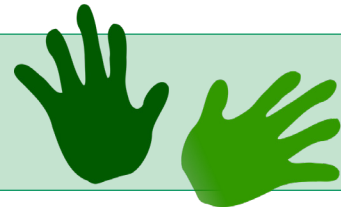      81 and  51. Both have 3 as a factor.

*Work in pairs*

**Things you will need:**
• A multiplication grid

**What to do:**

1.  Tell your partner what each of these words mean, giving an example for each.

    **factor**                    **multiple**

2.  Now, with your partner, find at least one number to fit in each cell of this table.  Do use the multiplication grid to help if needed.

|  | **Factor of 36** | **Multiple of 5** | **Factor of 54** | **Multiple of 7** |
|---|---|---|---|---|
| **Odd** |  |  |  |  |
| **Even** |  |  |  |  |
| **Multiple of 3** |  |  |  |  |

**S-t-r-e-t-c-h:**
Find a number on the multiplication grid with more than six factors.

**Learning outcomes:**
• I can find factors of numbers and multiples within known times tables.
• I am beginning to realise what sorts of numbers have many factors.

| ×  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 1  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
| 2  | 2  | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18  | 20  | 22  | 24  |
| 3  | 3  | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27  | 30  | 33  | 36  |
| 4  | 4  | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36  | 40  | 33  | 48  |
| 5  | 5  | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  | 55  | 60  |
| 6  | 6  | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54  | 60  | 66  | 72  |
| 7  | 7  | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63  | 70  | 77  | 84  |
| 8  | 8  | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72  | 80  | 88  | 96  |
| 9  | 9  | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81  | 90  | 99  | 108 |
| 10 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90  | 100 | 110 | 120 |
| 11 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  | 110 | 121 | 132 |
| 12 | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |

# Investigation
## Multiples and factors

**2  3  4  5  6  7  8  9**

- Choose two of these numbers. Find and write down numbers which are a **common multiple** of them both.
  e.g. Choose 4 and 5.   20, 40, 60, 80 and 100 are all multiples of 4 and 5.

- 20 is the **lowest common multiple** of 4 and 5.

- Repeat, each time choosing a different pair of numbers.

- Score 1 point for each common multiple that you can find. How quickly can you score 50 points?

Tara said that to find the *lowest* common multiple of *any* pair of numbers you can multiply the two numbers.
Is she correct?
Use some of your own answers to explain this.

Dylan said that once he has found a common multiple of two numbers, he can *double* the number and he will have another common multiple!
Is he correct?
Use some of your own answers to explain this.

### Challenge

- Choose two of the numbers; use them to make a pair of two 2-digit numbers. e.g. Choose 2 and 7 and make 27 and 72.

- Find the factors of each number:

  27:  1, 3, 9 and 27 (4 factors).

  72:  1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36 and 72 (12 factors).

- Choose further numbers and repeat.

- Does the *larger* number of the pair *always* have the most factors?