1 Count in multiples
Make sure you keep practising stage 2 multiples.
Then you need to learn these multiples:

<table>
<thead>
<tr>
<th>Multiples of 4</th>
<th>Multiples of 8</th>
<th>Multiples of 50</th>
<th>Multiples of 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>16</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>12</td>
<td>24</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>16</td>
<td>32</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>20</td>
<td>40</td>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>24</td>
<td>48</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>28</td>
<td>56</td>
<td>350</td>
<td>700</td>
</tr>
<tr>
<td>32</td>
<td>64</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td>36</td>
<td>72</td>
<td>450</td>
<td>900</td>
</tr>
<tr>
<td>40</td>
<td>80</td>
<td>500</td>
<td>1000</td>
</tr>
</tbody>
</table>

2 Find 10 more or 10 less

<table>
<thead>
<tr>
<th>hundreds</th>
<th>tens</th>
<th>ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

10 more than 352 becomes 362.
10 less than 352 becomes 342."
Say: "It is the 'tens digit' that changes.

3 Find 100 more or 100 less

<table>
<thead>
<tr>
<th>hundreds</th>
<th>tens</th>
<th>ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

100 more than 352 becomes 452.
100 less than 352 becomes 252."
Say: "It is the 'hundreds' digit that changes.

4 Recognise place value

<table>
<thead>
<tr>
<th>hundreds</th>
<th>tens</th>
<th>ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

Partition numbers into hundreds, tens and ones:

352 means 300 + 50 + 2

5 Numbers in words and figures

Need to be able to read and write numbers up to 1000 as words and figures.

Up to 100:

<table>
<thead>
<tr>
<th>Hundred</th>
<th>Ten</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>One hundred</td>
<td>forty</td>
<td>seven</td>
</tr>
</tbody>
</table>

One hundred and forty-seven

Up to 1000:

<table>
<thead>
<tr>
<th>Hundred</th>
<th>Ten</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Four hundred</td>
<td></td>
<td>nine</td>
</tr>
</tbody>
</table>

Four hundred and nine

<table>
<thead>
<tr>
<th>Thousands</th>
<th>Hundred</th>
<th>Ten</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>One Thousand</td>
<td>Three hundred</td>
<td>Sixty</td>
<td>One</td>
</tr>
</tbody>
</table>

One thousand, three hundred and sixty one

6 Make numbers using equipment up to 1000
7 **Compare numbers up to 1000**

Find the smaller number.

![Number comparison](image)

<table>
<thead>
<tr>
<th>hundreds</th>
<th>tens</th>
<th>ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>9</td>
</tr>
</tbody>
</table>

648 is smaller than 649

8 **Order numbers up to 1000**

Look carefully at this number line and write the missing numbers.

---

9 **Estimating**

**Eyeball estimate**

I think there are 10 stars.

How can you use this image to estimate larger amounts?

Say: "I estimate there are about 60 because I think it’s about 6 times larger than the first group."

11 **Estimate the answer to a calculation**

**Example:** Estimate the cost of 5 magazines at £1.95 each

Answer: It is about 5 x £2 = £10

**Example:** When full this bottle holds 400ml.

Estimate how much water is left in this bottle.

Answer: about 150ml

12 **Mental addition**

Add ones to a three-digit number:

620 + 4 = 624

Add tens to a three-digit number:

620 + 30 = 650

Add hundreds to a three-digit number:

620 + 100 = 720

12 **Written method for addition**

**Expanded Column Addition without bridging:**

Ensure digits are lined up in the correct columns

132 + 237 =

<table>
<thead>
<tr>
<th>H</th>
<th>T</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

100 + 200 + 300 =

330 + 60 + 70 =

367 + 67 = 734

**Expanded column Addition with bridging:**

Ensure digits are lined up in the correct columns

132 + 239 =

<table>
<thead>
<tr>
<th>H</th>
<th>T</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

100 + 200 + 300 =

300 + 60 + 70 =

371 + 67 = 438

371 + 670 = 1048
13 Written method for subtraction

Expanded Column Subtraction without bridging:
Ensure digits are lined up in the correct columns

\[
\begin{array}{c@{}c@{}c@{}c}
\text{H} & \text{T} & \text{O} \\
2 & 3 & 9 \\
1 & 0 & 2 \\
1 & 3 & 7 \\
\end{array}
\quad \begin{array}{c@{}c@{}c@{}c}
\text{H} & \text{T} & \text{O} \\
200 & 30 & 9 \\
100 & 0 & 2 \\
100 & 30 & 7 \\
\end{array}
\]

\[239 - 102 = \]
\[200 + 30 + 9 - 100 - 0 - 2 = 137\]

Expanded Column Subtraction with bridging:
Ensure digits are lined up in the correct columns

\[
\begin{array}{c@{}c@{}c@{}c}
\text{H} & \text{T} & \text{O} \\
2 & 3 & 0 \\
1 & 0 & 2 \\
1 & 2 & 7 \\
\end{array}
\quad \begin{array}{c@{}c@{}c@{}c}
\text{H} & \text{T} & \text{O} \\
200 & 30 & 0 \\
100 & 0 & 2 \\
100 & 20 & 7 \\
\end{array}
\]

\[230 - 102 = \]
\[200 - 30 + 0 - 100 - 0 - 2 = 127\]

14 Multiply & divide

\[\begin{array}{c@{}c@{}c@{}c}
9 \times 8 & = 72 \\
8 \times 9 & = 72 \\
72 \div 8 & = 9 \\
72 \div 9 & = 8 \\
\end{array}\]

Estimate answers to calculations

\[\begin{array}{l}
\bullet \text{Round off each number} \\
\bullet \text{Then do the calculation} \\
\end{array}\]

Example:

Estimate 83 + 28
\[8 + 2 = 10\]
\[80 + 20 = 100\]

Estimate “The answer will be around 100.”

Missing number problems

\[\begin{array}{c@{}c@{}c@{}c}
\text{Fact family for +/-} \\
34 + 23 & = 57 \\
23 + 34 & = 57 \\
57 - 23 & = 34 \\
57 - 34 & = 23 \\
\end{array}\]
15 Tenths

<table>
<thead>
<tr>
<th></th>
<th>tens</th>
<th>ones</th>
<th>tenths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>2</td>
<td>• 6</td>
</tr>
</tbody>
</table>

- This represents 6 tenths $= \frac{6}{10}$

### Counting in tenths

- A whole one divided into 10 equal parts
- $1 \div 10 = 1$ tenth or $\frac{1}{10}$ or 0.1

### Equivalent fractions

- The same fraction can be expressed in different ways

\[
\begin{align*}
\frac{1}{2} &= \frac{2}{4} = \frac{3}{6} = \frac{8}{16}
\end{align*}
\]

### Fractions of numbers

- To find a tenth of an object or quantity you divide by 10

Write a fraction of a number of objects

\[
\frac{2}{5} \text{ are blue and } \frac{3}{5} \text{ are red}
\]

### Example

Example: $\frac{1}{10}$ of 20 = 20 ÷ 10 = 2

16 Fraction of a line or objects

- To find $\frac{1}{5}$ of a line
  Divide the line into 5 equal parts

Each part is $\frac{1}{5}$

- To find $\frac{1}{5}$ of a set of objects
  Divide objects into 5 equal parts

18 Equivalent fractions

- The same fraction can be expressed in different ways

ALL THESE ARE $\frac{1}{2}$
Fractions (continued)

ALL THESE ARE $\frac{1}{4}$

\[
\begin{align*}
\frac{1}{4} & = \frac{2}{8} & \frac{3}{12} & = \frac{6}{24}
\end{align*}
\]

19 Add & subtract fractions

- To add and subtract fractions
  - When the denominators are the same

\[
\begin{align*}
\frac{5}{7} + \frac{1}{7} & = \frac{6}{7} \\
\frac{5}{7} - \frac{1}{7} & = \frac{4}{7}
\end{align*}
\]

20 Compare fractions

- Fractions with the same denominator

\[
\begin{align*}
\frac{1}{10} & \quad \frac{3}{10} & \quad \frac{7}{10} & \quad \frac{9}{10}
\end{align*}
\]

The bigger the numerator, the bigger the fraction

21 Add & subtract measures

- The units must be the same

Length - Example

- 1metre = 100centimetres

- 1centimetre = 10millimetres
**Measures (continued)**

3 cm + 7 mm
= 30 mm + 7 mm
= 37 mm
or 3 cm 7 mm or 3.7 cm

Mass - Example

![Image of a 1 kg mass]

1 kg = 1000 g

3 kg - 450 g
= 3000 g - 450 g
= 2550 g
or 2 kg 550 g or 2.55 kg

Volume - Example

![Image of a litre bottle and a beaker]

1 litre = 1000 millilitres

800 ml + 720 ml
= 1520 ml
= 1 litre and 520 ml
= 1.52 litres

---

**22 Perimeter**

PERIMETER is the distance round the outside of a shape

- On a centimetre square grid - count round

![Diagram of a shape with measurements]

Perimeter of this shape = 12 cm

- Measurements given - add up all round

6 cm

4 cm

6 cm

Perimeter of this shape = 6 + 4 + 6 + 4 = 20 cm

---

**23 Bills and change**

To work out a bill

1 chocolate bar - £1.10
1 pen - 10 p
1 pencil - 8 p
Total = £1.28

Use column method with decimal point

\[
\begin{array}{c}
£1.10 \\
10 p \\
8 p \\
\hline
£1.28 \\
\end{array}
\]

To find change by the 'add-on' method

\[
\begin{array}{c}
£1.28 \\
£1.30 \\
£1.50 \\
£2.00 \\
\hline
+2 p \\
+20 p \\
+50 p \\
= 72 p \\
\end{array}
\]
### 24 Time

**Analogue clock**

<table>
<thead>
<tr>
<th>Roman</th>
<th>Hindu–Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>XI</td>
<td>11</td>
</tr>
<tr>
<td>X</td>
<td>10</td>
</tr>
<tr>
<td>IX</td>
<td>9</td>
</tr>
<tr>
<td>VIII</td>
<td>8</td>
</tr>
<tr>
<td>VII</td>
<td>7</td>
</tr>
<tr>
<td>VI</td>
<td>6</td>
</tr>
<tr>
<td>V</td>
<td>5</td>
</tr>
<tr>
<td>IV</td>
<td>4</td>
</tr>
<tr>
<td>III</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>•</td>
<td>0</td>
</tr>
</tbody>
</table>

### 12- and 24-hour clock

#### Times of the day in 12-hour clock

<table>
<thead>
<tr>
<th>Morning</th>
<th>Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>midnight</td>
<td>noon</td>
</tr>
<tr>
<td>1.00 am</td>
<td>1.00 pm</td>
</tr>
<tr>
<td>2.00 am</td>
<td>2.00 pm</td>
</tr>
<tr>
<td>3.00 am</td>
<td>3.00 pm</td>
</tr>
<tr>
<td>4.00 am</td>
<td>4.00 pm</td>
</tr>
<tr>
<td>5.00 am</td>
<td>5.00 pm</td>
</tr>
<tr>
<td>6.00 am</td>
<td>6.00 pm</td>
</tr>
<tr>
<td>7.00 am</td>
<td>7.00 pm</td>
</tr>
<tr>
<td>8.00 am</td>
<td>8.00 pm</td>
</tr>
<tr>
<td>9.00 am</td>
<td>9.00 pm</td>
</tr>
<tr>
<td>10.00 am</td>
<td>10.00 pm</td>
</tr>
<tr>
<td>11.00 am</td>
<td>11.00 pm</td>
</tr>
<tr>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>noon</td>
<td>midnight</td>
</tr>
</tbody>
</table>

#### Time – hours minutes, seconds

- 5 minutes between each number—so this time is 1:27 or we say 27 minutes past 1
- the "knuckle method"

#### Months of the year

- A rhyme to remember the days in each month
  
  30 days has September,  
  April, June and November.  
  All the rest have 31  
  Except February alone,  
  Which has 28 days clear  
  And 29 in each leap year.

- the "knuckle method"
A knuckle is "31 days", and in between each knuckle it isn’t.
And where your hands meet, the two knuckles are "July, August", which both have 31 days.

February has 28 days & 29 days in a leap year (every 4 years)

365 days in a year
366 days in a leap year

25 2D Shapes
• With 3 sides (Triangles)
2D Shape (continued)

- With 4 sides (Quadrilaterals)
  - square
  - rectangle
  - parallelogram
  - trapezium
  - rhombus

- With 5 sides (Pentagons)
  - regular
  - irregular

- With 6 sides (Hexagons)
  - regular
  - irregular

3D Shapes

- Cube
- Cuboid
- Triangular prism
- Cylinder
- Sphere
- Cone
- Square-based Pyramid

- Nets

26 Angles

- An angle is an amount of a turn
Angles (continued)

• Angles in shapes

Triangle - 3 angles

Quadrilateral - 4 angles

Pentagon - 5 angles

• Names of angles

ACUTE angles are less than 90°

RIGHT angles are exactly 90°

A square for 90° angle

OBTUSE angles are bigger than 90°

Right angles
ONE right angle measures exactly 90°

TWO right angles measure exactly 180°
This is called a half-turn

THREE right angles measure exactly 270°
This is called three quarters of a turn

FOUR right angles measure exactly 360°
This is called a full or complete turn

To check if an angle is bigger or smaller than a right angle, use a square corner

This angle is greater than a right angle

This angle is less than a right angle
27 Types of Lines

The Horizon is a horizontal line

This cliff face is a vertical line

The running track is parallel lines (never meet)

The rise & tread are perpendicular lines (meet at 90°)

28 Tables and graphs

Frequency table to show pets owned by Year 3

<table>
<thead>
<tr>
<th>Type of pet</th>
<th>Tally</th>
<th>Number of pets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>III</td>
<td>5</td>
</tr>
<tr>
<td>Cat</td>
<td>III</td>
<td>3</td>
</tr>
<tr>
<td>Rabbit</td>
<td>IIIII</td>
<td>4</td>
</tr>
<tr>
<td>Fish</td>
<td>IIII</td>
<td>8</td>
</tr>
<tr>
<td>Hamster</td>
<td>II</td>
<td>2</td>
</tr>
</tbody>
</table>

A bar graph to show pets owned by Year 3

Pictogram to show the colours in a tube of Smarties

<table>
<thead>
<tr>
<th>Colour</th>
<th>Number of Smarties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Green Green Green Green Green Green Green Green</td>
</tr>
<tr>
<td>Orange</td>
<td>Orange Orange Orange Orange Orange Orange Orange Orange</td>
</tr>
<tr>
<td>Blue</td>
<td>Blue Blue Blue Blue Blue Blue Blue Blue Blue Blue</td>
</tr>
<tr>
<td>Pink</td>
<td>Pink Pink Pink Pink Pink Pink Pink Pink Pink Pink</td>
</tr>
<tr>
<td>Yellow</td>
<td>Yellow Yellow Yellow Yellow Yellow Yellow Yellow Yellow Yellow</td>
</tr>
<tr>
<td>Purple</td>
<td>Purple Purple Purple Purple Purple Purple Purple Purple Purple Purple</td>
</tr>
</tbody>
</table>

Key: Red = 2 smarties
Solve answers to questions

♦ Bar chart in 28

(i) How many more children own a rabbit than a hamster?
   Answer: \(4 - 2 = 2\)

(ii) What is the difference between the number of children who own a dog and the number of children who own a cat?
   Answer: \(5 - 3 = 2\)

(iii) How many pets are owned altogether by the children Year 3?
   Answer: \(5 + 3 + 4 + 8 + 2 = 22\)

♦ Pictogram in 28

(i) How many fewer blue smarties are there than yellow ones?
   Answer: \(11 - 5 = 6\)

(ii) Work out the total number of smarties in the tube
   Answer: 55