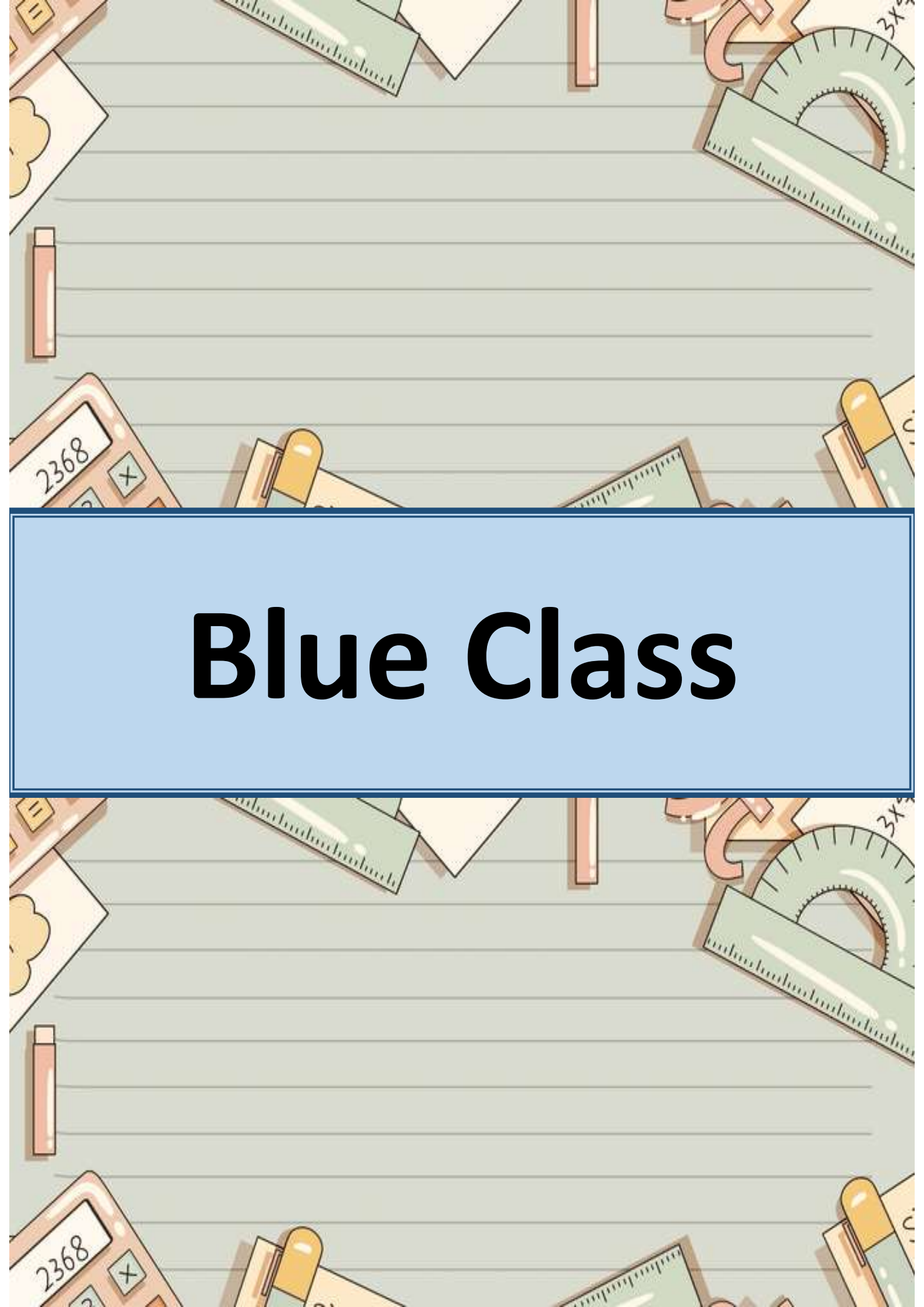
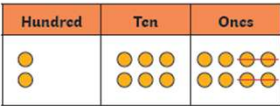
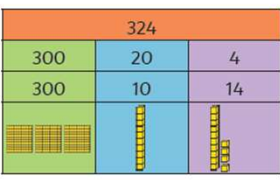
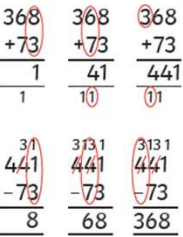
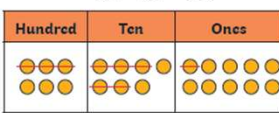
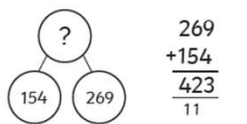
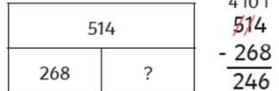
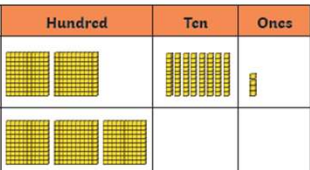
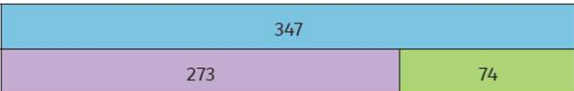
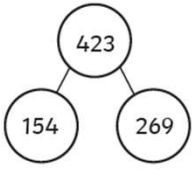


The background of the page is a light gray surface with horizontal lines, resembling a notebook. It is decorated with various school supplies: a green ruler, a protractor, a calculator showing '2368', a pencil, a paperclip, and a small notepad with a cloud drawing. These items are scattered around the edges of the page.

# Blue Class

# Addition and Subtraction: Stage 3

| Addition and Subtraction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         | Knowledge Organiser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Key Vocabulary</b><br>add<br>total<br>plus<br>sum<br>more<br>altogether<br>difference<br>subtract<br>less<br>minus<br>take away<br>column addition<br>column subtraction<br>exchange<br>estimate<br>inverse operation<br>solve problems<br>number facts<br>place value                                                                                                                                                                                                                                              | <b>Addition and Subtraction Methods</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| <b>3-digit and 1-digit numbers</b><br>Not crossing 10s<br>$268 - 4 = 264$<br><br>$343 + 6 = 349$<br><br>Crossing 10s (Exchanging)<br><br>$316 + 8 = 324$<br><br>$324 - 8 = 316$ |                                         | <b>3-digit and 2-digit numbers</b><br>Add and subtract tens<br><br>$451 + 3 \text{ tens} = 481$ ( $5 + 3 = 8$ )<br>$451 - 4 \text{ tens} = 411$ ( $5 - 4 = 1$ )<br>Crossing 10s (Exchanging)<br>$258 + 80 = 338$<br>• Column method<br>• Count in 10s mentally<br>• Add 100, subtract 20<br>Crossing 10 and 100<br>                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                         | <b>3-digit numbers</b><br>Not crossing<br>$679 - 351 = 328$<br><br>Crossing 10s (Exchanging)<br><br><br><b>Add and Subtract 100s</b><br>$284 + 300 = 584$<br> |  |

| Addition and Subtraction                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Knowledge Organiser |                   |                   |                   |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Estimate</b><br>Estimate by dividing the hundred into 250 and 225.<br>Estimate 10s (330, 340) between 325 and 350.<br><br>Estimate $167 - 89$<br>Use near numbers $170 - 90 = 80$<br>Near numbers:<br> | <b>Check Answers</b><br><br>$347 - 74 = 273$ can be checked using<br>$273 + 74 = 347$<br>This part whole shows the inverse calculations using these three numbers.<br><br><table border="1"> <tbody> <tr> <td><math>154 + 269 = 423</math></td> <td><math>269 + 154 = 423</math></td> </tr> <tr> <td><math>423 - 154 = 269</math></td> <td><math>423 - 269 = 154</math></td> </tr> </tbody> </table> |                     | $154 + 269 = 423$ | $269 + 154 = 423$ | $423 - 154 = 269$ | $423 - 269 = 154$ |
| $154 + 269 = 423$                                                                                                                                                                                                                                                                                                                                                               | $269 + 154 = 423$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                   |                   |                   |                   |
| $423 - 154 = 269$                                                                                                                                                                                                                                                                                                                                                               | $423 - 269 = 154$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                   |                   |                   |                   |

# Addition and Subtraction: Stage 4

| Addition and Subtraction                                                             |                                                                                                             | Knowledge Organiser |                                                                                                                    |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------|
| Key Vocabulary                                                                       | Addition and Subtraction Methods                                                                            |                     |                                                                                                                    |
| Add                                                                                  | <b>Add 4-digit numbers</b>                                                                                  |                     | <b>Subtract 4-digit numbers</b>                                                                                    |
| Total                                                                                | No exchange                                                                                                 |                     | No exchange                                                                                                        |
| Plus                                                                                 | $\begin{array}{r} 5162 \\ +3427 \\ \hline 8589 \end{array}$                                                 |                     | $\begin{array}{r} 5789 \\ -3421 \\ \hline 2368 \end{array}$                                                        |
| Sum                                                                                  | Starting with the ones, add each column in turn.                                                            |                     | Starting with the ones, subtract each column in turn.                                                              |
| More                                                                                 |                                                                                                             |                     |                                                                                                                    |
| Altogether                                                                           | One exchange                                                                                                |                     | One exchange                                                                                                       |
| Difference                                                                           | $\begin{array}{r} 5162 \\ +3497 \\ \hline 8659 \\ 1 \end{array}$                                            |                     | $\begin{array}{r} 61 \\ 5749 \\ -3471 \\ \hline 2278 \end{array}$                                                  |
| Subtract                                                                             | Starting with the ones, add each column in turn. When adding 6 tens + 9 tens = 15 tens = 1 hundred + 5 tens |                     | Starting with the ones, subtract each column in turn. When subtracting 4 tens -7 tens, exchange 1 hundred to make: |
| Less                                                                                 | Place 1 hundred under the hundreds answer and 5 tens in the answer.                                         |                     | 14 tens - 7 tens = 7 tens                                                                                          |
| Minus                                                                                | Multiple exchanges                                                                                          |                     | Multiple exchanges                                                                                                 |
| Take away                                                                            | $\begin{array}{r} 5864 \\ +3497 \\ \hline 9361 \\ 111 \end{array}$                                          |                     | $\begin{array}{r} 6131 \\ 5742 \\ -3476 \\ \hline 2266 \end{array}$                                                |
| Mentally, Orally                                                                     | Starting with the ones, add each column in turn. Exchange tens, hundreds and/ or thousands as required.     |                     | Starting with the ones, subtract each column in turn. Exchange tens, hundreds and/ or thousands as required.       |
| Column Addition                                                                      |                                                                                                             |                     |                                                                                                                    |
| Column Subtraction                                                                   |                                                                                                             |                     |                                                                                                                    |
| Exchange                                                                             |                                                                                                             |                     |                                                                                                                    |
| Estimate                                                                             |                                                                                                             |                     |                                                                                                                    |
| Inverse operation                                                                    |                                                                                                             |                     |                                                                                                                    |
| Solve problems                                                                       |                                                                                                             |                     |                                                                                                                    |
| Number facts                                                                         |                                                                                                             |                     |                                                                                                                    |
| <b>Efficient subtraction</b>                                                         |                                                                                                             |                     |                                                                                                                    |
| <b>Calculate <math>6000 - 3617 = 2383</math></b>                                     |                                                                                                             |                     |                                                                                                                    |
|  |                                                                                                             |                     |                                                                                                                    |

# Addition and Subtraction

# Knowledge Organiser

## Add and Subtract 1s, 10s, 100s, 1000s

Here is the number 3124

Add 2 thousands = 5124

Add 5 hundreds = 5624

Subtract 2 tens = 5604

Add 5 ones = 5609

Here is the number 6708

| Thousands | Hundreds | Tens | Ones |
|-----------|----------|------|------|
| 6         | 7        | 0    | 8    |

Add 3 thousands = 9708

Subtract 4 hundreds = 9308

Add 5 tens = 9358

Subtract 7 ones = 9351

**Crossing ones, tens or hundreds**

5392 + 4 tens = 5432 crossing tens

5126 - 600 = 4526 crossing hundreds

When crossing ones, tens or hundreds, more than one digit will change.

visit [twinkl.com](https://www.twinkl.com)

## Round to Estimate

1635 + 386 = 2021

Round to the nearest ten

1640 + 390 = 2030

Round to the nearest hundred

1600 + 400 = 2000

Both give a reasonable estimate, but rounding the nearest ten is more accurate.

9362 - 5729 = 3622

Round to the nearest hundred

9400 - 5700 = 3700

Round to the nearest thousand

9000 - 6000 = 3000

Rounding to the nearest hundred is much more accurate in this case.

## Checking Strategies

**Using Inverse**

3476 - 744 = 2732 can be checked using

2732 + 744 = 3476

This part whole shows the inverse calculations using these three numbers.

|                    |                    |
|--------------------|--------------------|
| 1549 + 2688 = 4237 | 2688 + 1549 = 4237 |
| 4237 - 1549 = 2688 | 4237 - 2688 = 1549 |

**Adding in a different order**

420 + 372 + 280 =

**Change to**

420 + 280 + 372 =

As 420 + 280 = 700

(because 42 + 28 = 70)

420 + 280 + 372 = 700 + 372 = 1072

# Decimals: Stage 4

| Decimals            |                                         | Knowledge Organiser              |
|---------------------|-----------------------------------------|----------------------------------|
| Key Vocabulary      | Tenths and Hundredths                   | Fraction and Decimal Equivalents |
| tenths              |                                         | = $\frac{1}{2}$ = 0.5            |
| hundredths          |                                         | = $\frac{1}{4}$ = 0.25           |
| decimal tenths      |                                         | = $\frac{3}{4}$ = 0.75           |
| decimal hundredths  |                                         | = $\frac{1}{10}$ = 0.1           |
| decimal equivalents | Tenth and Hundredth Decimal Equivalents |                                  |
| part-whole model    |                                         |                                  |
| rounding            |                                         |                                  |
| decimal point       |                                         |                                  |
| place value         |                                         |                                  |

| Decimals        |                                                                                 | Knowledge Organiser                                                              |
|-----------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Dividing by 10  | Rounding Decimals                                                               |                                                                                  |
|                 |                                                                                 |                                                                                  |
|                 | If the tenths digit is 1, 2, 3 or 4, we round down to the nearest whole number. | If the tenths digit is 5, 6, 7, 8 or 9, we round up to the nearest whole number. |
| Dividing by 100 | Make a Whole                                                                    | Comparing Numbers with Two Decimal Places                                        |
|                 |                                                                                 |                                                                                  |
|                 | Partitioning Tenths and Hundredths                                              |                                                                                  |
|                 |                                                                                 |                                                                                  |

# Multiplication and Division: Stage 3

| Multiplication and Division                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                             | Knowledge Organiser                                                                                                                                         |    |    |    |    |    |    |     |     |     |     |    |    |   |   |   |   |   |   |   |   |   |   |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |   |   |   |   |    |    |    |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                              |
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| <b>Key Vocabulary</b><br>times tables<br>multiply by<br>divide by<br>array<br>fact families<br>regrouping                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Multiplication and Division Facts (3, 4 and 8 multiplication tables)</b> |                                                                                                                                                             |    |    |    |    |    |    |     |     |     |     |    |    |   |   |   |   |   |   |   |   |   |   |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |   |   |   |   |    |    |    |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                              |
| <table border="1"> <tr><th>x</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th></tr> <tr><th>1</th><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><th>2</th><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td><td>22</td><td>24</td></tr> <tr><th>3</th><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td><td>33</td><td>36</td></tr> <tr><th>4</th><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td><td>24</td><td>28</td><td>32</td><td>36</td><td>40</td><td>44</td><td>48</td></tr> <tr><th>5</th><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td><td>55</td><td>60</td></tr> <tr><th>6</th><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td><td>42</td><td>48</td><td>54</td><td>60</td><td>66</td><td>72</td></tr> <tr><th>7</th><td>7</td><td>14</td><td>21</td><td>28</td><td>35</td><td>42</td><td>49</td><td>56</td><td>63</td><td>70</td><td>77</td><td>84</td></tr> <tr><th>8</th><td>8</td><td>16</td><td>24</td><td>32</td><td>40</td><td>48</td><td>56</td><td>64</td><td>72</td><td>80</td><td>88</td><td>96</td></tr> <tr><th>9</th><td>9</td><td>18</td><td>27</td><td>36</td><td>45</td><td>54</td><td>63</td><td>72</td><td>81</td><td>90</td><td>99</td><td>108</td></tr> <tr><th>10</th><td>10</td><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td><td>110</td><td>120</td></tr> <tr><th>11</th><td>11</td><td>22</td><td>33</td><td>44</td><td>55</td><td>66</td><td>77</td><td>88</td><td>99</td><td>110</td><td>121</td><td>132</td></tr> <tr><th>12</th><td>12</td><td>24</td><td>36</td><td>48</td><td>60</td><td>72</td><td>84</td><td>96</td><td>108</td><td>120</td><td>132</td><td>144</td></tr> </table> |                                                                             | x                                                                                                                                                           | 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 | 44 | 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 | <div> <b>3 x Tables</b> <math>1 \times 3 = 3</math><br/> <math>2 \times 3 = 6</math><br/> <math>3 \times 3 = 9</math><br/> <math>4 \times 3 = 12</math><br/> <math>5 \times 3 = 15</math><br/> <math>6 \times 3 = 18</math><br/> <math>7 \times 3 = 21</math><br/> <math>8 \times 3 = 24</math><br/> <math>9 \times 3 = 27</math><br/> <math>10 \times 3 = 30</math><br/> <math>11 \times 3 = 33</math><br/> <math>12 \times 3 = 36</math> </div> <div> <math>3 \div 3 = 1</math><br/> <math>6 \div 3 = 2</math><br/> <math>9 \div 3 = 3</math><br/> <math>12 \div 3 = 4</math><br/> <math>15 \div 3 = 5</math><br/> <math>18 \div 3 = 6</math><br/> <math>21 \div 3 = 7</math><br/> <math>24 \div 3 = 8</math><br/> <math>27 \div 3 = 9</math><br/> <math>30 \div 3 = 10</math><br/> <math>33 \div 3 = 11</math><br/> <math>36 \div 3 = 12</math> </div> |  | <b>4 x Tables</b> $1 \times 4 = 4$<br>$2 \times 4 = 8$<br>$3 \times 4 = 12$<br>$4 \times 4 = 16$<br>$5 \times 4 = 20$<br>$6 \times 4 = 24$<br>$7 \times 4 = 28$<br>$8 \times 4 = 32$<br>$9 \times 4 = 36$<br>$10 \times 4 = 40$<br>$11 \times 4 = 44$<br>$12 \times 4 = 48$ | <b>8 x Tables</b> $1 \times 8 = 8$<br>$2 \times 8 = 16$<br>$3 \times 8 = 24$<br>$4 \times 8 = 32$<br>$5 \times 8 = 40$<br>$6 \times 8 = 48$<br>$7 \times 8 = 56$<br>$8 \times 8 = 64$<br>$9 \times 8 = 72$<br>$10 \times 8 = 80$<br>$11 \times 8 = 88$<br>$12 \times 8 = 96$ |
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| 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 |    |    |   |   |   |   |   |   |   |   |   |   |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |   |   |   |   |    |    |    |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                              |
| <b>Write and Calculate Mathematical Statements</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                             | <b>Related Calculations</b>                                                                                                                                 |    |    |    |    |    |    |     |     |     |     |    |    |   |   |   |   |   |   |   |   |   |   |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |   |   |   |   |    |    |    |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                              |
| <div> <math>4 \times 8 = 32</math><br/> <math>32 \div 8 = 4</math> </div> <div> <math>8 \times 4 = 32</math><br/> <math>32 \div 4 = 8</math> </div> <div> <math>5 \times 3 = 15</math><br/> <math>15 \div 3 = 5</math> </div> <div> <math>3 \times 5 = 15</math><br/> <math>15 \div 5 = 3</math> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                             | <div> <math>3 \times 4 = 12</math><br/> <math>4 \times 3 = 12</math> </div> <div> <math>30 \times 4 = 120</math><br/> <math>40 \times 3 = 120</math> </div> |    |    |    |    |    |    |     |     |     |     |    |    |   |   |   |   |   |   |   |   |   |   |    |    |    |   |   |   |   |   |    |    |    |    |    |    |    |    |   |   |   |   |    |    |    |    |    |    |    |    |    |   |   |   |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |    |   |   |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |    |     |     |     |    |    |    |    |    |    |    |    |    |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                              |

| Multiplication and Division                                                                                                                                                                                                                                                                                 |   | Knowledge Organiser                                     |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------|---|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---|---|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---|---|--|---|---|---|--|---|--|---|---|--|---|--|
| <b>Written Multiplication Methods - No Regrouping</b>                                                                                                                                                                                                                                                       |   | <b>Written Multiplication Methods - With Regrouping</b> |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
| <div> <b>Tens</b><br/> </div> <div> <b>Ones</b><br/> </div> <div> <math>23 \times 3 = 69</math> </div> <div> <table border="1"> <tr><td></td><td>T</td><td>O</td></tr> <tr><td></td><td>2</td><td>3</td></tr> <tr><td>x</td><td></td><td>3</td></tr> <tr><td></td><td>6</td><td>9</td></tr> </table> </div> |   | T                                                       | O |   | 2 | 3 | x                                                                                                                                                                                                                                    |  | 3 |   | 6 | 9 | <div> <b>Tens</b><br/> </div> <div> <b>Ones</b><br/> </div> <div> <math>24 \times 4 = 96</math> </div> <div> <table border="1"> <tr><td></td><td>T</td><td>O</td></tr> <tr><td></td><td>2</td><td>4</td></tr> <tr><td>x</td><td></td><td>4</td></tr> <tr><td></td><td>9</td><td>6</td></tr> <tr><td></td><td>1</td><td></td></tr> </table> </div> |  | T | O |  | 2 | 4 | x |  | 4 |  | 9 | 6 |  | 1 |  |
|                                                                                                                                                                                                                                                                                                             | T | O                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                             | 2 | 3                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
| x                                                                                                                                                                                                                                                                                                           |   | 3                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                             | 6 | 9                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                             | T | O                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                             | 2 | 4                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
| x                                                                                                                                                                                                                                                                                                           |   | 4                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                             | 9 | 6                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                             | 1 |                                                         |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
| <b>Written Division Methods - No Regrouping</b>                                                                                                                                                                                                                                                             |   | <b>Written Division Methods - With Regrouping</b>       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
| <div> <b>Tens</b><br/> </div> <div> <b>Ones</b><br/> </div> <div> <math>84 \div 4</math> </div> <div> <table border="1"> <tr><td></td><td>2</td><td>1</td></tr> <tr><td>4</td><td>8</td><td>4</td></tr> </table> </div> <div> </div>                                                                        |   | 2                                                       | 1 | 4 | 8 | 4 | <div> <b>Tens</b><br/> </div> <div> <b>Ones</b><br/> </div> <div> <math>45 \div 3</math> </div> <div> <table border="1"> <tr><td></td><td>1</td><td>5</td></tr> <tr><td>3</td><td>4</td><td>5</td></tr> </table> </div> <div> </div> |  | 1 | 5 | 3 | 4 | 5                                                                                                                                                                                                                                                                                                                                                 |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                             | 2 | 1                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
| 4                                                                                                                                                                                                                                                                                                           | 8 | 4                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
|                                                                                                                                                                                                                                                                                                             | 1 | 5                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |
| 3                                                                                                                                                                                                                                                                                                           | 4 | 5                                                       |   |   |   |   |                                                                                                                                                                                                                                      |  |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                   |  |   |   |  |   |   |   |  |   |  |   |   |  |   |  |

# Multiplication and Division: Stage 4

# Multiplication and Division

## Knowledge Organiser

### Key Vocabulary

### Multiplication and Division Facts

### Use Place Value to Multiply and Divide Mentally

multiply

|   |   |   |   |   |   |   |   |   |   |    |    |    |
|---|---|---|---|---|---|---|---|---|---|----|----|----|
| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|

groups of

|   |   |   |   |   |   |   |   |   |   |    |    |    |
|---|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|

lots of

|   |   |   |   |   |    |    |    |    |    |    |    |    |
|---|---|---|---|---|----|----|----|----|----|----|----|----|
| 2 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
|---|---|---|---|---|----|----|----|----|----|----|----|----|

times

|   |   |   |   |    |    |    |    |    |    |    |    |    |
|---|---|---|---|----|----|----|----|----|----|----|----|----|
| 3 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
|---|---|---|---|----|----|----|----|----|----|----|----|----|

divide

|   |   |   |    |    |    |    |    |    |    |    |    |    |
|---|---|---|----|----|----|----|----|----|----|----|----|----|
| 4 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 |
|---|---|---|----|----|----|----|----|----|----|----|----|----|

share

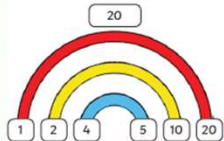
|   |   |    |    |    |    |    |    |    |    |    |    |    |
|---|---|----|----|----|----|----|----|----|----|----|----|----|
| 5 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
|---|---|----|----|----|----|----|----|----|----|----|----|----|

remainder

|   |   |    |    |    |    |    |    |    |    |    |    |    |
|---|---|----|----|----|----|----|----|----|----|----|----|----|
| 6 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 |
|---|---|----|----|----|----|----|----|----|----|----|----|----|

factor

### Factor pairs and Commutativity



The factors of 20 are 1, 2, 4, 5, 10 and 20.

The factor pairs are:

1 and 20   2 and 10   4 and 5

$5 \times 4 = 20$

$4 \times 5 = 20$

multiple

product

### Multiply Using Formal Written Methods

| Th | H | T | O |
|----|---|---|---|
|    | 5 | 4 | 3 |
| x  |   |   | 4 |
|    |   | 1 | 2 |
|    | 1 | 6 | 0 |
| 2  | 0 | 0 | 0 |
| 2  | 1 | 7 | 2 |

| Th | H | T | O |
|----|---|---|---|
|    | 5 | 4 | 3 |
| x  |   |   | 4 |
|    |   |   |   |
| 2  | 1 | 7 | 2 |
|    | 1 | 1 |   |

Remember to move any regrouped numbers into the next column. After the next multiplication, add the regrouped number to the answer.

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Multiplication and Division

Knowledge Organiser

Mental Calculations for Solving Problems

$$(2 \times 3) \times 4 = 24$$

$$(2 \times 4) \times 3 = 24$$

$$(3 \times 4) \times 2 = 24$$

```

    graph TD
      A((16 x 3)) --- B((10 x 3))
      A --- C((6 x 3))
      B --- D[30 + 18 = 48]
      C --- D
  
```

Integer Scaling Problems

10 pencils

$10 \times 4 = 40$  pencils

75g

$75g \times 2 = 150g$

Short Division with Exact Answers

There are 69 tennis balls packed in tubes of 3.

There are 23 tubes altogether.

$$69 \div 3 = 23$$

$$\begin{array}{r} 23 \\ 3 \overline{) 69} \end{array}$$

|    |    |    |
|----|----|----|
| 69 |    |    |
| 23 | 23 | 23 |

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# Number and place Value: Stage 3

# Number and Place Value

# Knowledge Organiser

## Key Vocabulary

hundreds

tens

ones

zero

place value

greater than

less than

order

more

less

partition

digit

## 3-Digit Numbers

**256**

two hundred

200

fifty

50

six

6

## Counting in 4s and 8s

0 4 8 12 16 20 24 28 32 36 40

0 8 16 24 32 40 48 56 64 72 80

## 10 and 100 More or Less

Ten Less

120

Ten More

130

140

One Hundred Less

212

One Hundred More

312

412

## Counting in 50s and 100s

0 50 100 150 200 250 300 350 400 450 500

0 100 200 300 400 500 600 700 800 900 1000

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# Number and Place Value

# Knowledge Organiser

## Compare and Order

| 100s | 10s | 1s |
|------|-----|----|
|      |     |    |

324 > 243

greater than

| 100s | 10s | 1s |
|------|-----|----|
|      |     |    |

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

79 < 126

less than

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

smallest

greatest

497 508 512 521 602

500 600

## Represent Numbers to 1000

**587**

five hundred and eighty-seven

| Hundreds | Tens | Ones |
|----------|------|------|
|          |      |      |

$$500 + 80 + 7$$

587

500 80 7

| Hundreds | Tens | Ones |
|----------|------|------|
|          |      |      |

## Numerals and Words to 1000

0 100 200 300 400 500 600 700 800 900 1000

zero one hundred two hundred three hundred four hundred five hundred six hundred seven hundred eight hundred nine hundred one thousand

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# Number and place Value: Stage 4

| Number and Place Value |  |                   |      |      |      | Knowledge Organiser |      |      |      |      |      |        |
|------------------------|--|-------------------|------|------|------|---------------------|------|------|------|------|------|--------|
| Key Vocabulary         |  | Counting          |      |      |      |                     |      |      |      |      |      |        |
| thousands              |  | Counting in 6s    |      |      |      |                     |      |      |      |      |      |        |
| hundreds               |  | 0                 | 6    | 12   | 18   | 24                  | 30   | 36   | 42   | 48   | 54   | 60     |
| tens                   |  | Counting in 7s    |      |      |      |                     |      |      |      |      |      |        |
| ones                   |  | 0                 | 7    | 14   | 21   | 28                  | 35   | 42   | 49   | 56   | 63   | 70     |
| zero                   |  | Counting in 9s    |      |      |      |                     |      |      |      |      |      |        |
| place value            |  | 0                 | 9    | 18   | 27   | 36                  | 45   | 54   | 63   | 72   | 81   | 90     |
| greater than           |  | Counting in 25s   |      |      |      |                     |      |      |      |      |      |        |
| less than              |  | 0                 | 25   | 50   | 75   | 100                 | 125  | 150  | 175  | 200  | 225  | 250    |
| order                  |  | Counting in 1000s |      |      |      |                     |      |      |      |      |      |        |
| round                  |  | 0                 | 1000 | 2000 | 3000 | 4000                | 5000 | 6000 | 7000 | 8000 | 9000 | 10 000 |
| rounded to             |  |                   |      |      |      |                     |      |      |      |      |      |        |
| negative number        |  |                   |      |      |      |                     |      |      |      |      |      |        |
| partition              |  |                   |      |      |      |                     |      |      |      |      |      |        |
| digit                  |  |                   |      |      |      |                     |      |      |      |      |      |        |
| Roman numeral          |  |                   |      |      |      |                     |      |      |      |      |      |        |
|                        |  |                   |      |      |      |                     |      |      |      |      |      |        |
|                        |  |                   |      |      |      |                     |      |      |      |      |      |        |
|                        |  |                   |      |      |      |                     |      |      |      |      |      |        |
|                        |  |                   |      |      |      |                     |      |      |      |      |      |        |
|                        |  |                   |      |      |      |                     |      |      |      |      |      |        |
|                        |  |                   |      |      |      |                     |      |      |      |      |      |        |
|                        |  |                   |      |      |      |                     |      |      |      |      |      |        |
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|                        |  |                   |      |      |      |                     |      |      |      |      |      |        |

Number and Place Value

Knowledge Organiser

Negative Numbers

Represent 4-Digit Numbers

3487

three thousand, four hundred and eighty-seven

| 1000s | 100s | 10s | 1s |
|-------|------|-----|----|
|       |      |     |    |

| Thousands | Hundreds | Tens | Ones |
|-----------|----------|------|------|
|           |          |      |      |

Roman Numerals

|             |     |   |
|-------------|-----|---|
| one         | 1   | I |
| five        | 5   | V |
| ten         | 10  | X |
| fifty       | 50  | L |
| one hundred | 100 | C |

XVIII = 18  
XXIX = 29  
LXXXIV = 84

Rounding

Look at the place value column to the right of the value you are rounding to. If this digit is a 4 or less, round down. If the digit is a 5 or more, round up.

Rounding to nearest 10

|              |    |    |    |    |            |    |    |    |    |    |
|--------------|----|----|----|----|------------|----|----|----|----|----|
| 20           | 21 | 22 | 23 | 24 | 25         | 26 | 27 | 28 | 29 | 30 |
| ← round down |    |    |    |    | round up → |    |    |    |    |    |

Rounding to the nearest 100

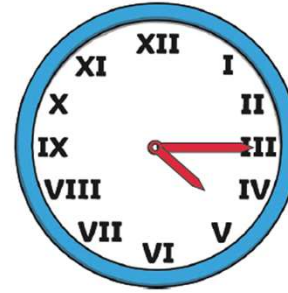
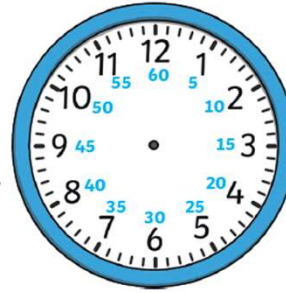
|              |     |            |     |
|--------------|-----|------------|-----|
| 200          | 249 | 250        | 300 |
| ← round down |     | round up → |     |

Rounding to the nearest 1000

|              |      |            |      |
|--------------|------|------------|------|
| 2000         | 2499 | 2500       | 3000 |
| ← round down |      | round up → |      |

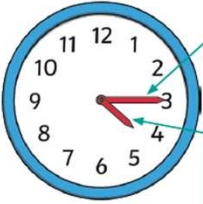
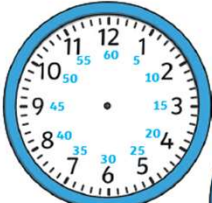
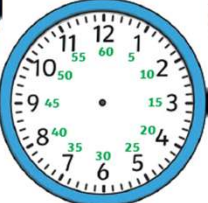
visit [twinkl.com](https://www.twinkl.com)

# Time: Stage 3

| Time                                                                                                                     | Knowledge Organiser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Key Vocabulary</b>                                                                                                    | <b>Analogue and Digital Clocks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 12-hour time                                                                                                             |  <p><b>Minute Hand</b><br/>The long hand points to the minutes past or the minutes to the hour.</p> <p><b>Hour Hand</b><br/>The short hand points to the hour. If this hand is pointing between hours, it is either past the earlier hour or to the later hour.</p>  <p>twelve o'clock</p>  <p>quarter past twelve</p>  <p>half past twelve</p>  <p>quarter to one</p> |  <p>twelve o'clock</p>  <p>quarter past twelve</p>  <p>half past twelve</p>  <p>quarter to one</p> |
| 24-hour time                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Roman numerals                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| analogue                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| digital                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| hours                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| minutes                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| seconds                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| o'clock                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| half past                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| quarter past                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| quarter to                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| midday                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| midnight                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| noon                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  <p><b>Time and Roman Numerals</b></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  <p><b>Hours, Minutes and Seconds</b></p> <p>There are <b>60 seconds</b> in an minute.</p> <p>There are <b>60 minutes</b> in an hour.</p>                                                                                                                                                                                                                   |

| Time                                                                                                                           | Knowledge Organiser                                                                                                                                                                                                                                                                                                                                                                  |            |             |                |            |            |                 |          |          |                |        |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|----------------|------------|------------|-----------------|----------|----------|----------------|--------|
| <b>24-Hour Time</b>                                                                                                            | <b>Calculate Durations of Time</b>                                                                                                                                                                                                                                                                                                                                                   |            |             |                |            |            |                 |          |          |                |        |
| <p><b>There are 24 hours in a day.</b></p>  |  <p>20 minutes has passed.</p>                                                                                                                                                                                                                                                                  |            |             |                |            |            |                 |          |          |                |        |
|                                                                                                                                | <p><b>Compare Durations of Time</b></p> <p>Compare the time using the vocabulary 'longer' and 'shorter'.</p> <table border="1"> <tbody> <tr> <td>180 seconds</td> <td>is the same as</td> <td>3 minutes.</td> </tr> <tr> <td>90 minutes</td> <td>is shorter than</td> <td>2 hours.</td> </tr> <tr> <td>48 hours</td> <td>is longer than</td> <td>1 day.</td> </tr> </tbody> </table> |            | 180 seconds | is the same as | 3 minutes. | 90 minutes | is shorter than | 2 hours. | 48 hours | is longer than | 1 day. |
| 180 seconds                                                                                                                    | is the same as                                                                                                                                                                                                                                                                                                                                                                       | 3 minutes. |             |                |            |            |                 |          |          |                |        |
| 90 minutes                                                                                                                     | is shorter than                                                                                                                                                                                                                                                                                                                                                                      | 2 hours.   |             |                |            |            |                 |          |          |                |        |
| 48 hours                                                                                                                       | is longer than                                                                                                                                                                                                                                                                                                                                                                       | 1 day.     |             |                |            |            |                 |          |          |                |        |

# Time: Stage 4

| Time                                                                                                                                                                                                                                                                                                                                                                             | Knowledge Organiser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Key Vocabulary</b> <ul style="list-style-type: none"> <li>12-hour time</li> <li>24-hour time</li> <li>Roman numerals</li> <li>analogue</li> <li>digital</li> <li>hours</li> <li>minutes</li> <li>seconds</li> <li>o'clock</li> <li>half past</li> <li>quarter past</li> <li>quarter to</li> <li>midday</li> <li>midnight</li> <li>noon</li> <li>a.m.</li> <li>p.m.</li> </ul> | <b>Analogue and Digital Clocks</b> <div>  <p><b>Minute Hand</b><br/>The long hand points to the minutes past the hour.</p> <p><b>Hour Hand</b><br/>The short hand points to the hour. If this hand is pointing between the hours, it is the earlier hour of the two.</p> </div> <div>  <p>twelve o'clock</p>  <p>quarter past twelve</p>  <p>half past twelve</p>  <p>quarter to one</p> </div> |
|                                                                                                                                                                                                                                                                                                                                                                                  | <b>Durations of Time</b> <div>  <p>There are <b>60 seconds</b> in a minute.</p>  <p>There are <b>60 minutes</b> in an hour.</p>  <p>There are <b>24 hours</b> in a day</p>  <p>There are <b>7 days</b> in a week.</p>  <p>There are <b>12 months</b> in a year.</p> </div>                                                                                                                  |

| Time                                                                                                                                                     | Knowledge Organiser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |            |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|---------|------------|--|--|-------|---------|------------|--|--|-------|---------|------------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|--------|-----------|--|--|-------|---------|------------|--|--|-------|---------|------------|--|--|-------|---------|------------|--|
| <b>24-Hour Time</b> <div> <p>There are 24 hours in a day.</p>  </div> | <table border="1"> <tbody> <tr><td></td><td>01:00</td><td>1 a.m.</td><td>1 o'clock</td><td></td></tr> <tr><td></td><td>02:00</td><td>2 a.m.</td><td>2 o'clock</td><td></td></tr> <tr><td></td><td>03:00</td><td>3 a.m.</td><td>3 o'clock</td><td></td></tr> <tr><td></td><td>04:00</td><td>4 a.m.</td><td>4 o'clock</td><td></td></tr> <tr><td></td><td>05:00</td><td>5 a.m.</td><td>5 o'clock</td><td></td></tr> <tr><td></td><td>06:00</td><td>6 a.m.</td><td>6 o'clock</td><td></td></tr> <tr><td></td><td>07:00</td><td>7 a.m.</td><td>7 o'clock</td><td></td></tr> <tr><td></td><td>08:00</td><td>8 a.m.</td><td>8 o'clock</td><td></td></tr> <tr><td></td><td>09:00</td><td>9 a.m.</td><td>9 o'clock</td><td></td></tr> <tr><td></td><td>10:00</td><td>10 a.m.</td><td>10 o'clock</td><td></td></tr> <tr><td></td><td>11:00</td><td>11 a.m.</td><td>11 o'clock</td><td></td></tr> <tr><td></td><td>12:00</td><td>12 p.m.</td><td>12 o'clock</td><td></td></tr> <tr><td></td><td>13:00</td><td>1 p.m.</td><td>1 o'clock</td><td></td></tr> <tr><td></td><td>14:00</td><td>2 p.m.</td><td>2 o'clock</td><td></td></tr> <tr><td></td><td>15:00</td><td>3 p.m.</td><td>3 o'clock</td><td></td></tr> <tr><td></td><td>16:00</td><td>4 p.m.</td><td>4 o'clock</td><td></td></tr> <tr><td></td><td>17:00</td><td>5 p.m.</td><td>5 o'clock</td><td></td></tr> <tr><td></td><td>18:00</td><td>6 p.m.</td><td>6 o'clock</td><td></td></tr> <tr><td></td><td>19:00</td><td>7 p.m.</td><td>7 o'clock</td><td></td></tr> <tr><td></td><td>20:00</td><td>8 p.m.</td><td>8 o'clock</td><td></td></tr> <tr><td></td><td>21:00</td><td>9 p.m.</td><td>9 o'clock</td><td></td></tr> <tr><td></td><td>22:00</td><td>10 p.m.</td><td>10 o'clock</td><td></td></tr> <tr><td></td><td>23:00</td><td>11 p.m.</td><td>11 o'clock</td><td></td></tr> <tr><td></td><td>00:00</td><td>12 a.m.</td><td>12 o'clock</td><td></td></tr> </tbody> </table> |         | 01:00      | 1 a.m. | 1 o'clock |  |  | 02:00 | 2 a.m. | 2 o'clock |  |  | 03:00 | 3 a.m. | 3 o'clock |  |  | 04:00 | 4 a.m. | 4 o'clock |  |  | 05:00 | 5 a.m. | 5 o'clock |  |  | 06:00 | 6 a.m. | 6 o'clock |  |  | 07:00 | 7 a.m. | 7 o'clock |  |  | 08:00 | 8 a.m. | 8 o'clock |  |  | 09:00 | 9 a.m. | 9 o'clock |  |  | 10:00 | 10 a.m. | 10 o'clock |  |  | 11:00 | 11 a.m. | 11 o'clock |  |  | 12:00 | 12 p.m. | 12 o'clock |  |  | 13:00 | 1 p.m. | 1 o'clock |  |  | 14:00 | 2 p.m. | 2 o'clock |  |  | 15:00 | 3 p.m. | 3 o'clock |  |  | 16:00 | 4 p.m. | 4 o'clock |  |  | 17:00 | 5 p.m. | 5 o'clock |  |  | 18:00 | 6 p.m. | 6 o'clock |  |  | 19:00 | 7 p.m. | 7 o'clock |  |  | 20:00 | 8 p.m. | 8 o'clock |  |  | 21:00 | 9 p.m. | 9 o'clock |  |  | 22:00 | 10 p.m. | 10 o'clock |  |  | 23:00 | 11 p.m. | 11 o'clock |  |  | 00:00 | 12 a.m. | 12 o'clock |  |
|                                                                                                                                                          | 01:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 a.m.  | 1 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 02:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2 a.m.  | 2 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 03:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3 a.m.  | 3 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 04:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4 a.m.  | 4 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 05:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5 a.m.  | 5 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 06:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6 a.m.  | 6 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 07:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 7 a.m.  | 7 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 08:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8 a.m.  | 8 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 09:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9 a.m.  | 9 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 10:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10 a.m. | 10 o'clock |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 11:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 11 a.m. | 11 o'clock |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 12:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 12 p.m. | 12 o'clock |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 13:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1 p.m.  | 1 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 14:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2 p.m.  | 2 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 15:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3 p.m.  | 3 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 16:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4 p.m.  | 4 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 17:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5 p.m.  | 5 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 18:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6 p.m.  | 6 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 19:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 7 p.m.  | 7 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 20:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8 p.m.  | 8 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 21:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9 p.m.  | 9 o'clock  |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 22:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10 p.m. | 10 o'clock |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 23:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 11 p.m. | 11 o'clock |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |
|                                                                                                                                                          | 00:00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 12 a.m. | 12 o'clock |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |        |           |  |  |       |         |            |  |  |       |         |            |  |  |       |         |            |  |