

| <b>Semi-Formal Objectives (if appropriate for the unit)</b><br><b>Also see the Onwards and Upwards Statement Progression for assessment statements.</b><br>For Vocabulary for each stage see <a href="#">Mathematical Vocabulary List Whole School.pdf</a>                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Strand                                                                                                                                                                                                                                                                                                                                                                                               | Skills + Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Suggested learning activities (including trips, activities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Links to accreditation (KS4 and KS5 if appropriate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Number Patterns</b><br><br><b>Vocab</b><br>the same number as, as many as Of two objects/amounts: greater, more, larger, bigger less, fewer, smaller Of three or more objects/amounts: greatest, most, biggest, largest least, fewest, smallest one more, ten more one less, ten less compare order size first, second, third... tenth last, last but one before, after next between above, below | R4-R7 <ul style="list-style-type: none"> <li>demonstrate an understanding of the concept of transaction</li> <li>demonstrate an understanding of the concept of 1:1 correspondence.</li> <li>distinguish between 'one' and 'lots', when shown an example of a single object and a group of objects</li> </ul> R8-R9 <ul style="list-style-type: none"> <li>Verbally count beyond 20, recognising the pattern of the counting system;</li> <li>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;</li> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</li> </ul> | <ul style="list-style-type: none"> <li>exchanging a coin for an / item one item for another shop role-play activity</li> <li>giving one of an item to each pupil</li> <li>Show differing groups of things - clear difference</li> <li>Counting games, songs, rhymes</li> <li>Practical counting and comparing games. Flash cards to compare.</li> <li>Patterns using objects, sharing, pattern cards</li> <li>Copy beats</li> <li>Turn taking</li> <li>Patterns</li> <li>Beats to numerals</li> <li>Beats to words tea (1), coffee (2), orange juice (3), blackcurrant juice (4) (frog, tadpole, caterpillar, butterfly)</li> <li>Compose using words/symbols</li> </ul> | KS5 only<br><br><b>Year 1 (23-24)</b><br><b>Laser Award</b><br><b>Intro to Whole Numbers</b><br>WJF500 (E1)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf</a><br>WJB238 (E2)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2018/07/introduction-To-Whole-Numbers-E2-WJB238.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2018/07/introduction-To-Whole-Numbers-E2-WJB238.pdf</a><br>WJF501 (E3)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf</a><br><br><b>Year 3 (25-26)</b><br><b>Laser Award</b><br><b>Using whole numbers</b><br>WJF543(E1)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf</a><br>WJF544 (E2)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf</a><br>WJF545 (E3)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf</a> |

## Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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                                                                             |
| <p><b>Counting Principles</b></p> <p><b>Vocab</b></p> <p>number zero, one, two, three... to twenty and beyond zero, ten, twenty... one hundred none how many...? count, count (up) to count on (from, to) count back (from, to) count in ones, twos... tens... more, less, many, few odd, even every other how many times? pattern, pair guess how many, estimate nearly, close to, about the same as just over, just under too many, too few, enough, not enough</p> | <p>R4-R7</p> <ul style="list-style-type: none"> <li>say the number names to 5 in the correct order (e.g. in a song or by joining in with the teacher)</li> <li>demonstrate an understanding of the concept of numbers up to 5 by putting together the right number of objects when asked</li> <li>demonstrate an understanding that the last number counted represents the total number of the count</li> <li>identify how many objects there are in a group of up to 10 objects, recognising smaller groups on sight and counting the objects in larger groups up to 10</li> <li>count to 20, demonstrating that the next number in the count is one more and the previous number is one less</li> </ul> <p>R8-R19</p> <ul style="list-style-type: none"> <li>Have a deep understanding of number to 10, including the composition of each number</li> <li>Subitise (recognise quantities without counting) up to 5;</li> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</li> <li>Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').</li> <li>Recite numbers past 5.</li> <li>Say one number for each item in order: 1,2,3,4,5.</li> <li>Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').</li> <li>Show 'finger numbers' up to 5.</li> <li>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</li> </ul> | <ul style="list-style-type: none"> <li>counting songs, number ordering, rhymes (stable order principle)</li> <li>counting their favourite things, specific items, people in the class.</li> <li>Counting a range of items and focus on final number being total</li> <li>Start to subitise (know totals by looking) using dice to pattern recognise numbers</li> <li>Counting on and back to 20 with a number line</li> <li>Cardinal principle – bouncing the ball, counting the bounces to know how many there are (RT)</li> <li>Abstract principle – rolling the dice, doing an action for that many (IF)</li> </ul><br><ul style="list-style-type: none"> <li>Making number with object, matching to numeral</li> <li>Number pair to make 5 with objects e.g. 2 yellow and 3 red counters make 5 <math>2 + 3 = 5</math></li> <li>Secure subitising (know totals by looking) using dice to pattern recognise numbers and groups of objects</li> <li>Count items accurately</li> <li>Count out objects to match numerals</li> <li>Find the bigger or smaller of two numbers</li> <li>Subitising – partner work, different objects and tested each other (SM)</li> <li>Subitising – board games, using the dice (IF)</li> <li>Subitising – rolling the dice, that many actions (RT)</li> <li>Counting – I spy worksheets on Twinkl.</li> <li>Counting – 21. When you land on 21 you are out.</li> </ul> <p>All these could be done with a variety of games, on screen interactive resources, in groups, individually etc.</p> | <p><b>Year 1 (23-24)</b><br/> <b>Laser Award</b><br/> <b>Intro to Whole Numbers</b><br/> WJF500 (E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf</a><br/> WJB238 (E2)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf</a><br/> WJF501 (E3)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf</a></p> <p><b>Year 3 (25-26)</b><br/> <b>Laser Award</b><br/> <b>Using whole numbers</b><br/> WJF543(E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf</a><br/> WJF544 (E2)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf</a><br/> WJF545 (E3)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf</a></p> |

## Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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|                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Count objects, actions and sounds.</li> <li>Experiment with their own symbols and marks as well as numerals.</li> <li>Link the number symbol (numeral) with its cardinal number value</li> <li>Count beyond 10</li> <li>Compare numbers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Addition</b><br><br><b>Vocab</b><br>add, more, and make,<br>sum, total altogether<br>score double one more,<br>two more, ten more...<br>how many more to<br>make... ? how many<br>more is... than...? | <p>R4-R7</p> <ul style="list-style-type: none"> <li>use real-life materials (e.g. apples or crayons) to add and subtract 1 from a group of objects and indicate how many are now present</li> </ul> <p>R8-R9</p> <ul style="list-style-type: none"> <li>Solve real world mathematical problems with numbers up to 5.</li> <li>Compare quantities using language: 'more than', 'fewer than'.</li> <li>Understand the 'one more than/one less than' relationship between consecutive numbers.</li> <li>Explore the composition of numbers to 10</li> <li>Automatically recall number bonds for numbers 0–5 and some to 10</li> <li>demonstrate an understanding of the mathematical symbols of add, subtract and equal to</li> <li>solve number problems involving the addition and subtraction of single-digit numbers up to 10</li> <li>demonstrate an understanding of the composition of numbers to 5 and a developing ability to recall number bonds to and within 5 (e.g. <math>2 + 2 = 4</math> and <math>3 + 1 = 4</math>)</li> </ul> | <ul style="list-style-type: none"> <li>adding one and taking one away of ourselves, objects, counters</li> <li>If I have 5 buns and pat takes 2 of them how many will I have left?</li> <li>If I have 2 bottles and pat gives me 2 how many will I have. Can be done practically not written down. Use objects to show</li> <li>Give pupils different amounts of cubes, who has more? Who has less?</li> <li>Use numicon or 10s frames with coloured cubes to show ways to make 10</li> <li>Show that add gives more and take away gives less. Use the numbers with cubes to show the answer</li> <li>Use objects to show number bonds to 5, 10, 20</li> <li>Use objects to show relationship between addition and subtraction</li> <li>Show a group of objects, if I take some away will I have more or less, if I add more will I have more or less?</li> <li>Show a group of objects, rearrange them, do they have more, less or the same?</li> <li>Addition – purple mash, wordwall. Topmarks (SM)</li> <li>Number bonds – MC G number bonds song (RT)</li> </ul> | <p><b>Year 1 (23-24)</b><br/> <b>Laser Award</b><br/> <b>Intro to Whole Numbers</b><br/> WJF500 (E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf</a><br/> WJB238 (E2)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf</a><br/> WJF501 (E3)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf</a></p> <p><b>Year 3 (25-26)</b><br/> <b>Laser Award</b><br/> <b>Using whole numbers</b><br/> WJF543(E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf</a><br/> WJF544 (E2)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf</a><br/> WJF545 (E3)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf</a></p> |

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|                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>demonstrate an understanding of the commutative law (e.g. <math>3 + 2 = 5</math>, therefore <math>2 + 3 = 5</math>)</li> <li>demonstrate an understanding of inverse relationships involving addition and subtraction (e.g. if <math>3 + 2 = 5</math>, then <math>5 - 2 = 3</math>)</li> <li>demonstrate an understanding that the total number of objects changes when objects are added or taken away</li> <li>demonstrate an understanding that the number of objects remains the same when they are rearranged, providing nothing has been added or taken away</li> </ul>                                                                         | <ul style="list-style-type: none"> <li>Number bonds – bean bags into a hoop (JM)</li> <li>Number bonds – rolling the 2 dice (JM)</li> <li>Uno number bonds-roll, write, count (JM)</li> <li>Number bonds - online darts (TG)</li> <li>Jenga addition – different sums on the blocks.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Subtraction</b><br><br><b>Vocab</b><br>take (away), leave how many are left/left over? how many have gone? one less, two less... ten less... how many fewer is... than...? difference between is the same as | <p>R4-R7</p> <ul style="list-style-type: none"> <li>use real-life materials (e.g. apples or crayons) to add and subtract 1 from a group of objects and indicate how many are now present</li> </ul> <p>R8-R9</p> <ul style="list-style-type: none"> <li>Solve real world mathematical problems with numbers up to 5.</li> <li>Compare quantities using language: 'more than', 'fewer than'.</li> <li>demonstrate an understanding of the mathematical symbols of add, subtract and equal to</li> <li>solve number problems involving the addition and subtraction of single-digit numbers up to 10</li> <li>demonstrate an understanding of the composition of numbers to 5 and a</li> </ul> | <ul style="list-style-type: none"> <li>taking one away of ourselves, objects, counters</li> <li>If I have 5 buns and pat takes 2 of them how many will I have left?</li> <li>Can be done practically not written down. Use objects to show</li> <li>Give pupils different amounts of cubes, who has more? Who has less?</li> <li>Use numicon or 10s frames with coloured cubes to show ways to make 10</li> <li>Show that add gives more and take away gives less. Use the numbers with cubes to show the answer</li> <li>Use objects to show relationship between addition and subtraction</li> <li>Show a group of objects, if I take some away will I have more or less, if I add more will I have more or less?</li> </ul> | <p><b>Year 1 (23-24)</b><br/> <b>Laser Award</b><br/> <b>Intro to Whole Numbers</b><br/> WJF500 (E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf</a><br/> WJB238 (E2)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf</a><br/> WJF501 (E3)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf</a></p> <p><b>Year 3 (25-26)</b><br/> <b>Laser Award</b><br/> <b>Using whole numbers</b><br/> WJF543(E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf</a><br/> WJF544 (E2)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf</a></p> |

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|                                                                                             | <p>developing ability to recall number bonds to and within 5 (e.g. <math>2 + 2 = 4</math> and <math>3 + 1 = 4</math>)</p> <ul style="list-style-type: none"> <li>demonstrate an understanding of the commutative law (e.g. <math>3 + 2 = 5</math>, therefore <math>2 + 3 = 5</math>)</li> <li>demonstrate an understanding of inverse relationships involving addition and subtraction (e.g. if <math>3 + 2 = 5</math>, then <math>5 - 2 = 3</math>)</li> <li>demonstrate an understanding that the total number of objects changes when objects are added or taken away</li> <li>demonstrate an understanding that the number of objects remains the same when they are rearranged, providing nothing has been added or taken away</li> </ul> | <ul style="list-style-type: none"> <li>Show a group of objects, rearrange them, do they have more, less or the same?</li> <li>Number lines and empty number lines (JG)</li> <li>Using skittles, however many you knock down is how many you take away.</li> </ul> | <p>WJF545 (E3)</p> <p><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p><b>Grouping and Sharing</b></p> <p><b>Vocab</b><br/>Share, equal, each, groups, sets</p> | <p>R4-R7</p> <ul style="list-style-type: none"> <li>Share objects between 2 or 3 plates/buckets one by one.</li> </ul> <p>R8-R9</p> <ul style="list-style-type: none"> <li>Solve real world mathematical problems with numbers up to 5.</li> <li>Share objects between up to 5 plates/buckets/people one by one.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>Sharing our plates, bowls, cups and sharing snack or juice</li> <li>Sharing socks, pairing socks</li> <li>Share glue, scissors, pencils for the lesson.</li> </ul>                                                         | <p><b>Year 1 (23-24)</b><br/><b>Laser Award</b><br/><b>Intro to Whole Numbers</b><br/>WJF500 (E1)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf</a><br/>WJB238 (E2)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf</a><br/>WJF501 (E3)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf</a></p> <p><b>Year 3 (25-26)</b><br/><b>Laser Award</b><br/><b>Using whole numbers</b><br/>WJF543(E1)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf</a><br/>WJF544 (E2)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf</a><br/>WJF545 (E3)</p> |

Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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|                                                                                                        |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                       | <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJFS45.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJFS45.pdf</a> |
| <b>Statistics</b><br><br><b>Vocab</b><br>count, sort, vote group,<br>set list same, different<br>table | R8-R9 <ul style="list-style-type: none"> <li>interpret and construct simple pictograms, tally charts, block diagrams and tables with full support</li> </ul> | <ul style="list-style-type: none"> <li>Go round school and ask questions, make a pictogram using the pictures of the answers, do eye colour, hair colour, boys and girls in class.</li> <li>Ask simple questions like which has most or least.</li> <li>Use purple mash – has a very good pictogram program. <b>2count</b></li> </ul> |                                                                                                                                                                                                         |

| <b>Formal Objectives (if appropriate for the unit)</b><br>For Vocabulary for each stage see <a href="#">Mathematical Vocabulary List Whole School.pdf</a>                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Strand                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Skills + Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Suggested learning activities (including trips, activities)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Links to accreditation (KS4 and KS5 if appropriate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Place Value</b><br><br>units, ones<br>tens, hundreds, thousands<br>ten thousand, hundred thousand, million<br>digit, one-, two-, three- or four-digit number<br>numeral<br>'teens' number<br>place, place value<br>stands for, represents<br>exchange<br>the same number as, as many as<br>equal to<br>Of two objects/amounts:<br>>, greater than, more than, larger than, bigger than<br><, less than, fewer than, smaller than<br>≥, greater than or equal to<br>≤, less than or equal to<br>Of three or more objects/amounts:<br>greatest, most, largest, biggest<br>least, fewest, smallest | R10-R12 <ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s</li> <li>given a number, identify 1 more and 1 less</li> <li>identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</li> <li>read and write numbers from 1 to 20 in numerals and words</li> </ul> R13-R14 <ul style="list-style-type: none"> <li>count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward</li> <li>recognise the place value of each digit in a two-digit number (10s, 1s)</li> <li>identify, represent and estimate numbers using different representations, including the number line</li> <li>compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> <li>read and write numbers to at least 100 in numerals and in words</li> <li>use place value and number facts to solve problems</li> </ul> | All of these activities can be adapted to the content at each level <ul style="list-style-type: none"> <li>Time to practice counting in given chunks (5s, 10s, 20s etc.)</li> <li>Read and write numbers in numerals and words, matching games, online work</li> <li>Number squares with missing numbers and identify missing value</li> <li>Use a range of ways to show numbers</li> <li>Number bonds to 100/1000/10000 using known facts</li> <li>Use a place value grid to identify worth of numbers e.g. HTU<br/>345 – 300 40 5<br/>Use a diagram to break the number up and show the PV of numbers.</li> <li>Compare and order numbers, use the &lt; less than &gt; greater then and = equals signs correctly.</li> <li>Learn to round to the nearest 10/100/1000 at appropriate level, can use a place value flip chart to do this</li> </ul> | <b>Year 1 (23-24)</b><br><b>Laser Award</b><br><b>Intro to Whole Numbers</b><br>WJF500 (E1)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf</a><br>WJB238 (E2)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf</a><br>WJF501 (E3)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf</a><br><br><b>Year 3 (25-26)</b><br><b>Laser Award</b><br><b>Using whole numbers</b><br>WJF543(E1)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf</a><br>WJF544 (E2)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf</a><br>WJF545 (E3)<br><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf</a><br><br><b>KS4 and KS5 Entry 1 – Level 2 Edexcel</b> |

## Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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| <p>one... ten... one hundred...<br/>one thousand more/less<br/>compare, order, size<br/>ascending/descending order<br/>first... tenth... twentieth<br/>last, last but one<br/>before, after<br/>next<br/>between, half-way between<br/>guess how many, estimate<br/>nearly, roughly, close to,<br/>about the same as<br/>approximate, approximately<br/><math>\approx</math>, is approximately equal to<br/>just over, just under<br/>exact, exactly<br/>too many, too few, enough,<br/>not enough<br/>round (up or down), nearest<br/>round to the nearest<br/>ten/hundred/thousand<br/>integer, positive, negative<br/>above/below zero, minus</p> | <p>R15-R16</p> <ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</li> <li>recognise the place value of each digit in a 3-digit number (100s, 10s, 1s)</li> <li>compare and order numbers up to 1,000</li> <li>identify, represent and estimate numbers using different representations</li> <li>read and write numbers up to 1,000 in numerals and in words</li> <li>solve number problems and practical problems involving these ideas</li> </ul> <p>R17-R18</p> <ul style="list-style-type: none"> <li>count in multiples of 6, 7, 9, 25 and 1,000</li> <li>find 1,000 more or less than a given number</li> <li>count backwards through 0 to include negative numbers</li> <li>recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)</li> <li>order and compare numbers beyond 1,000</li> <li>identify, represent and estimate numbers using different representations</li> <li>round any number to the nearest 10, 100 or 1,000</li> <li>solve number and practical problems that involve all of the above and with increasingly large positive numbers</li> <li>read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value</li> </ul> <p>R19- R20</p> <ul style="list-style-type: none"> <li>read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit</li> <li>count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</li> <li>interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0</li> </ul> | <ul style="list-style-type: none"> <li>Roll dice to make numbers and round them, talk about place value etc.</li> <li>Base 10 – for place value.</li> <li>Use place value counters.</li> <li>Circle time – people said a number, then the next person had to say one more or one less. Throw the ball to each other to switch up direction.</li> <li>Place value partitioning with a pack of cards SR</li> <li>Create a place value robot representing a number, writing the numeral and word, partitioning SR</li> <li>Numicon partitioning SR</li> <li>Read, write and order numbers in value SR</li> <li>Place value board games SR</li> <li>Place value numicon table SR</li> <li>2/3/4 digit bingo SR</li> </ul> |  |
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## Number Scheme of work R4-R23

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000</li> <li>solve number problems and practical problems that involve all of the above</li> <li>read Roman numerals to 1,000 (M) and recognise years written in Roman numerals</li> </ul> <p>R21-R23</p> <ul style="list-style-type: none"> <li>read, write, order and compare numbers up to 10,000,000 and determine the value of each digit</li> <li>round any whole number to a required degree of accuracy</li> <li>use negative numbers in context, and calculate intervals across 0</li> <li>solve number and practical problems that involve all of the above</li> </ul>                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p><b>Addition and Subtraction</b></p> <p>add, addition, more, plus, increase sum, total, altogether score double, near double how many more to make...? subtract, subtraction, take (away), minus, decrease leave, how many are left/left over? difference between half, halve how many more/fewer is... than...? how much more/less is...? equals, sign, is the same as tens boundary, hundreds boundary units boundary, tenths boundary inverse</p> | <p>R10-R12</p> <ul style="list-style-type: none"> <li>read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs</li> <li>represent and use number bonds and related subtraction facts within 20</li> <li>add and subtract one-digit and two-digit numbers to 20, including 0</li> <li>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = ? - 9</math></li> </ul> <p>R13-R14</p> <ul style="list-style-type: none"> <li>solve problems with addition and subtraction:</li> <li>using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>applying their increasing knowledge of mental and written methods</li> <li>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> </ul> | <p>All of these activities can be adapted to the content at each level</p> <ul style="list-style-type: none"> <li>Do practical addition using place value cards, digit cards, base 10 to show understanding.</li> <li>Word problems with numbers used that correlate to their level</li> <li>Use the RUCSAC method to teach word problems<br/> <a href="https://www.twinkl.co.uk/resource/t2-m-4381-rucsac-display-poster">https://www.twinkl.co.uk/resource/t2-m-4381-rucsac-display-poster</a> <ul style="list-style-type: none"> <li>R – read the question</li> <li>U – underline the key words and numbers</li> <li>C – choose what you’re going to do</li> <li>S – solve using your method</li> <li>A – answer in the space given and remember the units</li> </ul> </li> </ul> | <p><b>Year 1 (23-24)</b><br/> <b>Laser Award</b><br/> <b>Intro to Whole Numbers</b><br/> WJF500 (E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf</a><br/> WJB238 (E2)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf</a><br/> WJF501 (E3)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf</a></p> <p><b>Year 3 (25-26)</b><br/> <b>Laser Award</b><br/> <b>Using whole numbers</b><br/> WJF543(E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf</a><br/> WJF544 (E2)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf</a><br/> WJF545 (E3)</p> |

## Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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|  | <ul style="list-style-type: none"> <li>• add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> <li>• a two-digit number and 1s</li> <li>• a two-digit number and 10s</li> <li>• 2 two-digit numbers</li> <li>• adding 3 one-digit numbers</li> <li>• show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot</li> <li>• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems</li> </ul> </li> </ul> <p>R15-R16</p> <ul style="list-style-type: none"> <li>• add and subtract numbers mentally, including: <ul style="list-style-type: none"> <li>• a three-digit number and 1s</li> <li>• a three-digit number and 10s</li> <li>• a three-digit number and 100s</li> <li>• add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction</li> <li>• estimate the answer to a calculation and use inverse operations to check answers</li> <li>• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</li> </ul> </li> </ul> <p>R17-R18</p> <ul style="list-style-type: none"> <li>• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li> <li>• estimate and use inverse operations to check answers to a calculation</li> <li>• solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why</li> </ul> <p>R19- R20</p> | <ul style="list-style-type: none"> <li>○ C – Check your calculation using the inverse.</li> <li>• Use the calculation guidance for methods to teach and the order. Use a number line or 100 square to help with adding on.</li> <li>• Use number card to make additions and change and transfer to the total below</li> <li>• Begin to estimate by rounding</li> <li>• Check their work using the inverse – use a written method to check if they are correct.</li> <li>• Use dice to make calculations, remember that if it is a subtraction the bigger number needs to go at the top or at the beginning or a number sentence.</li> <li>• Learn how to round to check answers<br/>Example:<br/> <math>134 + 254 = 388</math> (actual calculation)<br/> <math>130 + 250 = 380</math> (rounded to ten)<br/> <math>100 + 300 = 400</math> (rounded to hundred) </li> </ul> | <p><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf</a></p> <p><b>KS4 and KS5 Entry 1 – Level 2 Edexcel</b></p> |
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## Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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|                                                                                                               | <ul style="list-style-type: none"> <li>• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</li> <li>• add and subtract numbers mentally with increasingly large numbers</li> <li>• use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</li> <li>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> </ul> <p>R21-R23</p> <ul style="list-style-type: none"> <li>• perform mental calculations, including with mixed operations and large numbers</li> <li>• identify common factors, common multiples and prime numbers</li> <li>• use their knowledge of the order of operations to carry out calculations involving the 4 operations</li> <li>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> <li>• solve problems involving addition, subtraction, multiplication and division</li> <li>• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> </ul> |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                      |
| <b>Multiplication and Division</b><br><br><b>Vocab</b><br>lots of, groups of times, multiply, multiplication, | <p>R10-R12</p> <ul style="list-style-type: none"> <li>• solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>All of these activities can be adapted to the content at each level</p> <ul style="list-style-type: none"> <li>• Do practical multiplication and division using place value cards, digit</li> </ul> | <p>Year 1 (23-24)<br/> Laser Award<br/> Intro to Whole Numbers<br/> WJF500 (E1)<br/> <a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E1-WJF500.pdf</a></p> |

## Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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| <p>multiplied by multiple of, product once, twice, three times... ten times... times as (big, long, wide... and so on) repeated addition array, row, column double, halve, share, share equally one each, two each, three each... group in pairs, threes... tens equal groups of divide, division, divided by, divided into remainder factor, quotient, divisible by inverse</p> | <p>R13-R14</p> <ul style="list-style-type: none"> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs</li> <li>show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot</li> <li>solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</li> </ul> <p>R15-R16</p> <ul style="list-style-type: none"> <li>recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</li> <li>write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</li> <li>solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects</li> </ul> <p>R17-R18</p> <ul style="list-style-type: none"> <li>recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></li> <li>use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers</li> <li>recognise and use factor pairs and commutativity in mental calculations</li> </ul> | <p>cards, base 10 to show understanding.</p> <ul style="list-style-type: none"> <li>Word problems with numbers used relevant to their level.</li> <li>Use the RUCSAC method to teach word problems<br/><a href="https://www.twinkl.co.uk/resource/t2-m-4381-rucsac-display-poster">https://www.twinkl.co.uk/resource/t2-m-4381-rucsac-display-poster</a> <ul style="list-style-type: none"> <li>R – read the question</li> <li>U – underline the key words and numbers</li> <li>C – choose what you’re going to do</li> <li>S – solve using your method</li> <li>A – answer in the space given and remember the units</li> <li>C – Check your calculation using the inverse.</li> </ul> </li> <li>Use the calculation guidance for methods to teach and the order. Use a number line or 100 square to help with groups</li> <li>Check their work using the inverse – use a written method to check if they are correct.</li> <li>Multiplication games and activates</li> <li>Doubling and halving using objects</li> <li>Factor rainbows</li> <li>Know multiplying by 10 and 100 (please don’t teach add or take away a zero as it makes life difficult further on.)</li> <li>Fizz buzz –</li> <li>Multiplication songs</li> </ul> | <p>WJB238 (E2)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2018/07/Introduction-To-Whole-Numbers-E2-WJB238.pdf</a><br/>WJF501 (E3)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Introduction-To-Whole-Numbers-E3-WJF501.pdf</a></p> <p>Year 3 (25-26)<br/><b>Laser Award</b><br/><b>Using whole numbers</b><br/>WJF543 (E1)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E1-WJF543.pdf</a><br/>WJF544 (E2)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E2-WJF544.pdf</a><br/>WJF545 (E3)<br/><a href="https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf">https://www.laser-awards.org.uk/wp-content/uploads/2019/04/Using-Whole-Numbers-E3-WJF545.pdf</a></p> <p><b>KS4 and KS5 Entry 1 – Level 2 Edexcel</b></p> |
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## Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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|  | <ul style="list-style-type: none"> <li>multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> <li>solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects</li> </ul> <p>R19- R20</p> <ul style="list-style-type: none"> <li>identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers</li> <li>know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</li> <li>establish whether a number up to 100 is prime and recall prime numbers up to 19</li> <li>multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</li> <li>multiply and divide numbers mentally, drawing upon known facts</li> <li>divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context</li> <li>multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000</li> <li>recognise and use square numbers and cube numbers, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>)</li> <li>solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes</li> <li>solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</li> <li>solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</li> </ul> <p>R21-R23</p> |  |  |
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# Number Scheme of work R4-R23

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|                                                                                                                                                                       | <ul style="list-style-type: none"> <li>multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</li> <li>divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</li> <li>divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context</li> <li>perform mental calculations, including with mixed operations and large numbers</li> <li>identify common factors, common multiples and prime numbers</li> <li>use their knowledge of the order of operations to carry out calculations involving the 4 operations</li> <li>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> <li>solve problems involving addition, subtraction, multiplication and division</li> <li>use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                            |                                              |
| <b>Fractions/percentages/decimals</b><br><br><b>Vocab</b><br><br>part, equal parts fraction, proper/improper fraction mixed number numerator, denominator equivalent, | R13-R14 <ul style="list-style-type: none"> <li>recognise, find, name and write fractions <math>\frac{1}{3}</math> , <math>\frac{1}{4}</math> , <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</li> <li>write simple fractions, for example <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></li> </ul> R15-R16 <ul style="list-style-type: none"> <li>count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>Get a set of objects and share between people in the class – e.g. 12 cakes between 3 people and talk about 3 people is <math>\frac{1}{3}</math> each</li> <li>Finding half of a number on a lady bird, each has to have the same on each side</li> <li>Colouring in parts of shapes</li> <li>Fractions wall to find equivalent fractions</li> </ul> | <b>KS4 and KS5 Entry 1 – Level 2 Edexcel</b> |

## Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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| <p>reduced to, cancel one whole half, quarter, eighth third, sixth, ninth, twelfth fifth, tenth, twentieth hundredth, thousandth as many as decimal, decimal fraction decimal point, decimal place percentage, per cent, %</p> | <ul style="list-style-type: none"> <li>• recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</li> <li>• recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</li> <li>• recognise and show, using diagrams, equivalent fractions with small denominators</li> <li>• add and subtract fractions with the same denominator within one whole [for example, <math>5/7 + 1/7 = 6/7</math> ]</li> <li>• compare and order unit fractions, and fractions with the same denominators</li> <li>• solve problems that involve all of the above</li> </ul> <p>R17-R18</p> <ul style="list-style-type: none"> <li>• recognise and show, using diagrams, families of common equivalent fractions</li> <li>• count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10</li> <li>• solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number</li> <li>• add and subtract fractions with the same denominator</li> <li>• recognise and write decimal equivalents of any number of tenths or hundreds</li> <li>• recognise and write decimal equivalents to <math>1/4</math> , <math>1/2</math> , <math>3/4</math></li> <li>• find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths</li> <li>• round decimals with 1 decimal place to the nearest whole number</li> <li>• compare numbers with the same number of decimal places up to 2 decimal places</li> <li>• solve simple measure and money problems involving fractions and decimals to 2 decimal places</li> </ul> | <ul style="list-style-type: none"> <li>• Dividing by 10 to find tenths, look at how this may create decimals</li> <li>• Understanding types of fractions and finding the lowest expression</li> <li>• Adding and subtracting problems</li> <li>• Order fractions with same or different denominators.</li> <li>• FDP equivalents and working between them</li> <li>• Matching pair games</li> <li>• Place value grids to show how numbers change when dividing by 10 and 100.</li> <li>• Working out sales and offers to see if they are good value of money</li> <li>• Use the RUCSAC method to teach word problems<br/> <a href="https://www.twinkl.co.uk/resource/t2-m-4381-rucsac-display-poster">https://www.twinkl.co.uk/resource/t2-m-4381-rucsac-display-poster</a> <ul style="list-style-type: none"> <li>○ R – read the question</li> <li>○ U – underline the key words and numbers</li> <li>○ C – choose what you’re going to do</li> <li>○ S – solve using your method</li> <li>○ A – answer in the space given and remember the units</li> <li>○ C – Check your calculation using the inverse.</li> </ul> </li> </ul> |  |
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# Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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|  | <p>R19- R20</p> <ul style="list-style-type: none"> <li>• compare and order fractions whose denominators are all multiples of the same number</li> <li>• identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</li> <li>• recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [for example, <math>2/5 + 4/5 = 6/5 = 1 \frac{1}{5}</math> ]</li> <li>• add and subtract fractions with the same denominator, and denominators that are multiples of the same number</li> <li>• multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> <li>• read and write decimal numbers as fractions [for example, <math>0.71 = 71/100</math> ]</li> <li>• recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> <li>• round decimals with 2 decimal places to the nearest whole number and to 1 decimal place</li> <li>• read, write, order and compare numbers with up to 3 decimal places</li> <li>• solve problems involving number up to 3 decimal places</li> <li>• recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction</li> <li>• solve problems which require knowing percentage and decimal equivalents of <math>1/2</math> , <math>1/4</math> , <math>1/5</math> , <math>2/5</math> , <math>4/5</math> and those fractions with a denominator of a multiple of 10 or 25</li> </ul> <p>R21-R23</p> <ul style="list-style-type: none"> <li>• use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li> <li>• compare and order fractions, including fractions <math>&gt;1</math></li> </ul> |  |  |
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# Number Scheme of work R4-R23

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|                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li> <li>• multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>1/4 \times 1/2 = 1/8</math>]</li> <li>• divide proper fractions by whole numbers [for example, <math>1/3 \div 2 = 1/6</math>]</li> <li>• associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>3/8</math>]</li> <li>• identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places</li> <li>• multiply one-digit numbers with up to 2 decimal places by whole numbers</li> <li>• use written division methods in cases where the answer has up to 2 decimal places</li> <li>• solve problems which require answers to be rounded to specified degrees of accuracy</li> <li>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                              |
| <b>Ratio and Proportion</b><br><br>proportion, ratio in every, for every to every, fair, unfair<br>likely, unlikely, likelihood, equally likely<br>certain, uncertain<br>probable, possible, impossible<br>chance, good chance, poor chance, no chance | R21-R23 <ul style="list-style-type: none"> <li>• Use ratio and proportion to calculate quantities.</li> <li>• Use ratio and proportion including map scales.</li> <li>• solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts</li> <li>• solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison</li> <li>• solve problems involving similar shapes where the scale factor is known or can be found</li> <li>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>• work on scaling models and the maths behind this</li> <li>• Looking at scaling recipes</li> <li>• Problem solving and word problems following the RUCSAC method.</li> <li>• <a href="https://www.twinkl.co.uk/resource/t2-m-4381-rucsac-display-poster">https://www.twinkl.co.uk/resource/t2-m-4381-rucsac-display-poster</a> <ul style="list-style-type: none"> <li>○ R – read the question</li> <li>○ U – underline the key words and numbers</li> <li>○ C – choose what you’re going to do</li> <li>○ S – solve using your method</li> </ul> </li> </ul> | <b>KS4 and KS5 Entry 1 – Level 2 Edexcel</b> |

# Number Scheme of work R4-R23

Websites available to support learning: purple mash, wordwall, twinkl, white rose maths, bbc, top marks

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| equal chance, even chance,<br>fifty-fifty chance<br>risk, doubt<br>biased, random                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>○ A – answer in the space given and remember the units</li> <li>○ C – Check your calculation using the inverse.</li> </ul>                                                                                                                                                                                                                                                                                                                  |                                              |
| <b>Algebra</b><br><br>term to term rule, variable, unknown, expression, equation, formula, one-step equation, two-step equation, substitution, pairs of unknowns, enumerate                                                                                                                                                                                                                                       | R21-23 <ul style="list-style-type: none"> <li>• use simple formulae</li> <li>• generate and describe linear number sequences</li> <li>• express missing number problems algebraically</li> <li>• find pairs of numbers that satisfy an equation with 2 unknowns</li> <li>• enumerate possibilities of combinations of 2 variables</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Looking at missing numbers before moving on to algebraic notation.</li> <li>• Understanding sequences using the bar model</li> <li>• Looking for variables.</li> </ul>                                                                                                                                                                                                                                                                    | <b>KS4 and KS5 Entry 1 – Level 2 Edexcel</b> |
| <b>Statistics</b><br><br>count, tally, sort, vote survey, questionnaire data, database graph, block graph, line graph pictogram, represent group, set, list, chart, bar chart, bar line chart tally chart table, frequency table Carroll diagram, Venn diagram label, title, axis, axes diagram most popular, most common least popular, least common mode, range, mean, average, median statistics, distribution | R7-10 <ul style="list-style-type: none"> <li>• Tally charts and pictograms.</li> <li>• Talk able information such as most or least in a pictogram. 1 symbol = 1 of the object.</li> </ul> R10-R12 <ul style="list-style-type: none"> <li>• interpret and construct simple pictograms, tally charts, block diagrams and tables with reducing support</li> <li>• interpret information presented in charts and diagrams and draw appropriate conclusions.</li> <li>• sort and classify objects using more than one criterion.</li> <li>• present work orally, in objects, pictorially and in written form, and use a variety of ways to represent collected data with suitable scales including:               <ul style="list-style-type: none"> <li>○ lists</li> <li>○ tally charts</li> <li>○ table and diagrams;</li> <li>○ pictograms where one symbol represents more than one unit using a key</li> </ul> </li> </ul> R13-R14 | <ul style="list-style-type: none"> <li>• Gather data and put in a tally then create bar charts on paper and online</li> <li>• Create and answer questions on the data</li> <li>• Create carol diagrams to sort items</li> <li>• Create Venn diagrams to sort</li> <li>• Finding differences in totals on the graph</li> <li>• Create and read line and pie charts – need to have angles knowledge of pie charts</li> <li>• Read a range of scales on charts and graphs.</li> </ul> | <b>KS4 and KS5 Entry 1 – Level 2 Edexcel</b> |

# Number Scheme of work R4-R23

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| <p>maximum/minimum value<br/>classify, outcome</p> | <ul style="list-style-type: none"> <li>interpret and construct simple pictograms, tally charts, block diagrams and tables independently</li> <li>ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li> <li>ask-and-answer questions about totalling and comparing categorical data</li> </ul> <p>R15-R16</p> <ul style="list-style-type: none"> <li>interpret and present data using bar charts, pictograms and tables</li> <li>solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables</li> </ul> <p>R17-R18</p> <ul style="list-style-type: none"> <li>interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</li> <li>solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</li> </ul> <p>R19- R20</p> <ul style="list-style-type: none"> <li>solve comparison, sum and difference problems using information presented in a line graph</li> <li>complete, read and interpret information in tables, including timetables</li> </ul> <p>R21-R23</p> <ul style="list-style-type: none"> <li>interpret and construct pie charts and line graphs and use these to solve problems</li> <li>calculate and interpret the mean as an average</li> </ul> |  |  |
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