**Year 5 Learning Outcomes**

**Autumn**

**Decimal fractions**

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| 1 | Pupils identify tenths as part of a whole |
| 2 | Pupils describe and represent tenths as a decimal fraction |
| 3 | Pupils count in tenths in different ways |
| 4 | Pupils describe and write decimal numbers with tenths in different ways |
| 5 | Pupils compare and order decimal numbers with tenths |
| 6 | Pupils explain that decimal numbers with tenths can be composed additively |
| 7 | Pupils explain that decimal numbers with tenths can be composed multiplicatively |
| 8 | Pupils use their knowledge to calculate with decimal numbers within and across one whole |
| 9 | Pupils use their knowledge to calculate with decimal numbers using mental methods |
| 10 | Pupils use their knowledge to calculate with decimal numbers using column addition and subtraction |
| 11 | Pupils use representations to round a decimal number with tenths to the nearest whole number |
| 12 | Pupils identify hundredths as part of a whole |
| 13 | Pupils describe and represent hundredths as a decimal fraction |
| 14 | Pupils describe and write decimals numbers with hundredths in different ways |
| 15 | Pupils compare and order decimal numbers with hundredths |
| 16 | Pupils explain that decimal numbers with hundredths can be partitioned in different ways |
| 17 | Pupils use their knowledge of decimal place value to convert between and compare metres and centimetres |
| 18 | Pupils explain that different lengths can be composed additively and multiplicatively |
| 19 | Pupils use their knowledge of decimal place value to solve problems in different contexts |
| 20 | Pupils use their knowledge to calculate with decimal numbers up to and bridging one tenth |
| 21 | Pupils use their knowledge to calculate with decimal numbers using column addition and subtraction |
| 22 | Pupils round a decimal number with hundredths to the nearest tenth |
| 23 | Pupils round a decimal number with hundredths to the nearest whole number |
| 24 | Pupils read and write numbers with up to 3 decimal places |
| 25 | Pupils compare and order numbers with up to 3 decimal places |

**Money**

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| 1 | Pupils explain and represent whole pounds as a quantity of money |
| 2 | Pupils explain and represent whole pounds and pence as a quantity of money |
| 3 | Pupils explain how to compare amounts of money |
| 4 | Pupils convert quantities of money between pounds and pence |
| 5 | Pupils use their knowledge of addition to efficiently add commonly used prices |
| 6 | Pupils use their knowledge of subtraction to calculate the change due when paying whole pounds or notes |
| 7 | Pupils use and explain the most efficient strategies when adding quantities of money |
| 8 | Pupils use and explain the most efficient strategies when subtracting quantities of money |
| 9 | Pupils find the change when purchasing several items |
| 10 | Pupils use the most efficient and reliable strategy to find the change when purchasing several items |

**Negative numbers**

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| 1 | Pupils represent a change story using addition and subtraction symbols |
| 2 | Pupils interpret numbers greater than and less than zero in different contexts |
| 3 | Pupils read and write negative numbers |
| 4 | Pupils explain how the value of a number relates to its position from zero |
| 5 | Pupils identify and place negative numbers on a number line |
| 6 | Pupils interpret sets of negative and positive numbers in a range of contexts |
| 7 | Pupils use their knowledge of positive and negative numbers to calculate intervals |
| 8 | Pupils explain how negative numbers are used on a coordinate grid |
| 9 | Pupils use their knowledge of positive and negative numbers to interpret graphs |

**Short multiplication and short division**

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| 1 | Pupils multiply a two-digit number by a single-digit number using partitioning and representations (no regroups) |
| 2 | Pupils multiply a two-digit number by a single-digit number using partitioning and representations (one regroup) |
| 3 | Pupils multiply a two-digit number by a single-digit number using partitioning and representations (two regroups) |
| 4 | Pupils multiply a two-digit number by a single-digit number using partitioning |
| 5 | Pupils multiply a two-digit number by a single-digit number using expanded multiplication (no regroups) |
| 6 | Pupils multiply a two-digit number by a single-digit number using short multiplication (no regroups) |
| 7 | Pupils multiply a two-digit number by a single-digit number using expanded multiplication (regrouping ones to tens) |
| 8 | Pupils multiply a two-digit number by a single-digit number using short multiplication (regrouping ones to tens) |
| 9 | Pupils multiply a two-digit number by a single-digit number using expanded multiplication (regrouping tens to hundreds) |
| 10 | Pupils multiply a two-digit number by a single-digit number using short multiplication (regrouping tens to hundreds) |
| 11 | Pupils multiply a two-digit number by a single-digit number using both expanded and short multiplication (two regroups) |
| 12 | Pupils use estimation to support accurate calculation |
| 13 | Pupils multiply a three-digit number by a single-digit number using partitioning and representations |
| 14 | Pupils multiply a three-digit number by a single-digit number using partitioning |
| 15 | Pupils multiply a three-digit number by a single-digit number using expanded and short multiplication (no regroups) |
| 16 | Pupils multiply a three-digit number by a single-digit number using expanded and short multiplication (one regroup) |
| 17 | Pupils multiply a three-digit number by a single-digit number using expanded and short multiplication (multiple regroups) |
| 18 | Pupils use estimation to support accurate calculation |
| 19 | Pupils divide a two-digit number by a single-digit number using partitioning and representations (no remainders, no exchanging) |
| 20 | Pupils divide a two-digit number by a single-digit number using partitioning and representations (with exchanging) |
| 21 | Pupils divide a two-digit number by a single-digit number using partitioning and representations (with exchanging and remainders) |
| 22 | Pupils divide a two-digit number by a single-digit number using short division (no exchanging, no remainders) |
| 23 | Pupils divide a two-digit number by a single-digit number using short division (with exchanging) |
| 24 | Pupils divide a two-digit number by a single-digit number using short division (with exchanging and remainders) |
| 25 | Pupils divide a three-digit number by a single-digit number using partitioning and representations (no exchanging, no remainders) |
| 26 | Pupils divide a three-digit number by a single-digit number using partitioning and representations (one exchange, no remainders) |
| 27 | Pupils divide a three-digit number by a single-digit number using partitioning and representations (with exchanging and remainders) |
| 28 | Pupils divide a three-digit number by a single-digit number using short division |
| 29 | Pupils divide a three-digit number by a single-digit number using short division (with exchanging and remainders) |
| 30 | Pupils solve short division problems accurately when the hundreds digit is smaller than the divisor |
| 31 | Pupils will use efficient strategies of division to solve problems |

**Spring**

**Area and scaling**

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| 1 | Pupils explain what area is and can measure using counting as a strategy (1) |
| 2 | Pupils explain what area is and can measure using counting as a strategy (2) |
| 3 | Pupils explain how to make different shapes with the same area |
| 4 | Pupils explain how to compare the area of different shapes |
| 5 | Pupils measure the area of flat shapes area using square centimetres |
| 6 | Pupils measure the area of flat shapes area using square metres |
| 7 | Pupils calculate the area of a rectangle using multiplication |
| 8 | Pupils calculate the area of rectilinear shapes |
| 9 | Pupils use their knowledge of area to solve problems |
| 10 | Pupils compare and describe lengths by using their knowledge of multiplication |
| 11 | Pupils use their knowledge of multiplication to solve comparison and change problems |
| 12 | Pupils compare and describe lengths by using their knowledge of division |
| 13 | Pupils use their knowledge of division to solve comparison and change problems |
| 14 | Pupils compare and describe measurements by using their knowledge of multiplication and division (mass/capacity/time) (1) |
| 15 | Pupils compare and describe measurements by using their knowledge of multiplication and division (mass/capacity/time) (2) |
| 16 | Pupils describe the changes in measurements using their knowledge of multiplication and division |
| 17 | Pupils use their knowledge of multiplication and division to solve comparison and change problems |

**Calculating with decimal fractions**

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| 1 | Pupils explain the effect of multiplying and dividing a number by 10, 100 and 1,000 (1) |
| 2 | Pupils explain the effect of multiplying and dividing a number by 10, 100 and 1,000 (2) |
| 3 | Pupils explain how to multiply and divide a number by 10, 100 and 1,000 (first ‘number’ two or more non-zero digits) |
| 4 | Pupils use their knowledge of multiplication and division by 10/100/1,000 to convert between units of measure (length) |
| 5 | Pupils use their knowledge of multiplication and division by 10/100/1,000 to convert between units of measure (mass and capacity) |
| 6 | Pupils explain how to use known multiplication facts and unitising to multiply decimal fractions by whole numbers (tenths) |
| 7 | Pupils explain how to use known multiplication facts and unitising to multiply decimal fractions by whole numbers (hundredths) |
| 8 | Pupils use their knowledge of multiplying decimal fractions by whole numbers to solve measures problems |
| 9 | Pupils explain the relationship between multiplying by 0.1 dividing by 10 |
| 10 | Pupils explain the relationship between multiplying by 0.01 dividing by 100 |
| 11 | Pupils explain how to use multiplying by 10 or 100 to multiply one-digit numbers by decimal fractions (1) |
| 12 | Pupils explain how to use multiplying by 10 or 100 to multiply one-digit numbers by decimal fractions (2) |
| 13 | Pupils explain how to use the size of the multiplier to predict the size of the product compared to the multiplicand |
| 14 | Pupils explain how to use multiplying by 10 or 100 to divide decimal fractions by one-digit numbers (1) |
| 15 | Pupils explain how to use multiplying by 10 or 100 to divide decimal fractions by one-digit numbers (2) |

**Factors, multiples and primes**

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| 1 | Pupils explain what ‘volume’ is using a range of contexts |
| 2 | Pupils describe the units used to measure volume |
| 3 | Pupils explain how to calculate the volume of a cuboid |
| 4 | Pupils explain what a cube number is |
| 5 | Pupils use their knowledge of calculating volume to solve problems in a range of contexts |
| 6 | Pupils explain how to calculate the volume of compound shapes |
| 7 | Pupils explain the use of the commutative and distributive laws when multiplying three or more numbers |
| 8 | Pupils explain the reasons for changing two-factor multiplication calculations to three-factor multiplications |
| 9 | Pupils explain what a factor is and how to use arrays and multiplication/division facts to find them |
| 10 | Pupils explain how to systematically find all factors of a number and how they know when they have found them all |
| 11 | Pupils use a complete list of factors to explain when a number is a square number |
| 12 | Pupils explain how to identify a prime number or a composite number |
| 13 | Pupils explain how to identify a common factor or a prime factor of a number |
| 14 | Pupils explain how to identify a multiple or common multiple of a number |
| 15 | Pupils use knowledge of properties of number to solve problems in a range of contexts |
| 16 | Pupils explain how to use the factor pairs of ‘100’ to solve calculations efficiently |

**Summer**

**Fractions**

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| 1 | Pupils explain the relationship between repeated addition of a proper fraction and multiplication of fractions (unit fractions) |
| 2 | Pupils explain the relationship between repeated addition of a proper fraction and multiplication of fractions (non-unit fractions) |
| 3 | Pupils multiply a proper fraction by a whole number (within a whole) |
| 4 | Pupils multiply a proper fraction by a whole number (greater than a whole) |
| 5 | Pupils multiply an improper fraction by a whole number |
| 6 | Pupils multiply a mixed number by a whole number (product is within a whole) |
| 7 | Pupils multiply a mixed number by a whole number (product is greater than a whole) |
| 8 | Pupils find a unit fraction of a quantity |
| 9 | Pupils explain the relationship between finding a fraction of a quantity and multiplying a whole number by a unit fraction |
| 10 | Pupils explain the relationship between dividing by a whole number and multiplying a whole number by a unit fraction |
| 11 | Pupils use their knowledge of multiplying a whole number by a unit fraction to solve problems |
| 12 | Pupils find a non-unit fraction of a quantity (mental calculation) |
| 13 | Pupils find a non-unit fraction of a quantity (written calculation) |
| 14 | Pupils multiply a whole number by a proper fraction |
| 15 | Pupils explain when a calculation represents scaling down and when it represents repeated addition |
| 16 | Pupils find the whole when the size of a unit fraction is known |
| 17 | Pupils find a unit fraction when the size of a non-unit fraction is known |
| 18 | Pupils find the whole when the size of a non-unit fraction is known |
| 19 | Pupils find the unit fraction when the size of a non-unit fraction is known |
| 20 | Pupils use representations to describe and compare two fractions (1/4 and 3/12) |
| 21 | Pupils use representations to describe and compare two fractions (1/5 and 5/10) |
| 22 | Pupils use representations to describe and compare two fractions (pouring context) |
| 23 | Pupils correctly use the language of equivalent fractions |
| 24 | Pupils explain the vertical relationship between numerators and denominators within equivalent fractions (1/5, 1/3 and equivalent) |
| 25 | Pupils use their knowledge of the vertical relationship to solve equivalent fractions problems |
| 26 | Pupils explain the horizontal relationship between numerators and denominators across equivalent fractions (1/5, 1/3 and equivalent) |
| 27 | Pupils explain the relationship within families of equivalent fractions |
| 28 | Pupils use their knowledge of equivalent fractions to solve problems |
| 29 | Pupils explain and represent how to divide 1 into different amounts of equal parts |
| 30 | Pupils identify and describe patterns within the number system |
| 31 | Pupils use their knowledge of common equivalents to compare fractions with decimals |
| 32 | Pupils practise recalling common fraction-decimal equivalents |

**Converting units**

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| 1 | Pupils apply memorised unit conversions to convert between units of measure (larger to smaller units - whole number conversions) |
| 2 | Pupils apply memorised unit conversions to convert between units of measure (smaller to larger units - whole number conversions) |
| 3 | Pupils convert from and to fraction and decimal fraction quantities of larger units |
| 4 | Pupils derive common conversions over 1 |
| 5 | Pupils carry out conversions that correspond to 100 parts |
| 6 | Pupils solve measures problems involving different units |
| 7 | Pupils understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints |
| 8 | Pupils convert between miles and kilometres |
| 9 | Pupils solve problems involving converting between units of time |

**Angles**

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| 1 | Pupils compare the size of angles where there is a clear visual difference |
| 2 | Pupils use the terms acute, obtuse and reflex when describing the size of angles or amount of rotation with relation to right angles |
| 3 | Pupils use a unit called degrees (°) as a standard unit to measure angles |
| 4 | Pupils estimate the size of angles in degrees using angle sets |
| 5 | Pupils measure the size of angles accurately using a protractor |