

Age-related expectations: Year Six

MATHS

Number and place value

1. order and compare numbers up to 10 000 000
2. read and write numbers up to 10 000 000 and determine the value of each digit
3. round any whole number to a required degree of accuracy
4. use negative numbers in context
5. calculate intervals across zero
6. solve number and practical problems that involve all of the above

Addition and subtraction, multiplication and division

7. multiply numbers up to 4 digits by a two-digit whole number using formal written method
8. divide numbers up to 4 digits by a two-digit whole number using formal written method
9. interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
10. divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate
11. perform mental calculations, including with mixed operations and large numbers
12. identify common factors, common multiples and prime numbers
13. use their knowledge of the order of operations to carry out calculations involving the four operations
14. solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
15. solve problems involving addition, subtraction, multiplication and division
16. use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Multiply all integers, (using efficient written methods) including mixed numbers and negative numbers

Fractions (including decimals and percentages)

17. use common factors to simplify fractions; use common multiples to express fractions in the same denomination
18. compare and order fractions, including fractions > 1
19. add and subtract fractions with different denominators and mixed numbers, using equivalent fractions
20. multiply simple pairs of proper fractions, writing the answer in its simplest form eg $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$
21. divide proper fractions by whole numbers eg $\frac{1}{3} \div 2 = \frac{1}{6}$
22. associate a fraction with division
23. calculate decimal fraction equivalents for a simple fraction [eg $\frac{3}{8} = 0.375$]
24. identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
25. multiply one-digit numbers with up to two decimal places by whole numbers
26. use written division methods in cases where the answer has up to two decimal places
27. solve problems which require answers to be rounded to specified degrees of accuracy
28. recall and use equivalences between simple fractions, decimals and percentages, in different contexts

Compare, order, convert between fractions, decimals and percentages in contexts related to science, history, geography

Ratio and proportion

29. solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
30. solve problems involving the calculation of percentages [eg, of measures, and such as 15% of 360] and the use of percentages for comparison
31. solve problems involving similar shapes where the scale factor is known or can be found
32. solve problems involving unequal sharing and grouping using knowledge of fractions and multiples

Algebra

33. use simple formulae
34. generate and describe linear number sequences
35. express missing number problems algebraically
36. find pairs of numbers that satisfy an equation with two unknowns
37. enumerate possibilities of combinations of 2 variables

Move beyond squared and cubed numbers to calculate problems such as $X \times 10^n$ where n is positive

Use +, -, \times , \div , \leq , \geq correctly

Recognise an arithmetic progression, and find the n th term