

Ordered strictly alphabetically

p2 algebraGraph,

p2 expandLinear,

p3 expandQuadratic,

p3 factorise,

p3 inequality,

p4 sequenceArithmetic,

p4 sequenceOther,

p5 simplifyPQ,

p5 simplifySD,

p6 solve,

p6 solvingReady,

p7 valueAlgebra,

p7 writeAlgebra,

algebraGraph

9. draw e.g. $x = 3$ or $y = 2$ or $y = \pm x$ or $x + y = 5$ {no table of values}
8. draw eg $y = 3x + 2$ {no table of values}
7. **scaffold to** complete the table of values for e.g. $x = 3$ or $y = 2$ or $y = \pm x$ or $x + y = 5$
scaffold is choice of two incomplete table of values
6. **scaffold to** work out y , when $x = 0$ and $x = 1$ for e.g. $y = 3x + 2$ **scaffold is** an example of the cover up method
5. **scaffold to** complete table of values and draw e.g. $y = 3x + 2$ **scaffold is** given $x = 0$ and $x = 1$ values in the table
4. **scaffold to** complete table of values and draw e.g. $x = 3$ or $y = 2$ or $x + y = 5$ or $y = x$ **scaffold is** easy scale, given half complete table and hints about which points are easier to plot first
3. **scaffold to** complete table of values and draw the line e.g. $y = 3x + 2$ **scaffold is** easy scale, given half complete table and hints about which points are easier to plot first
2. **scaffold to** draw the line e.g. $y = 3x + 2$ or $y = 16 - 2x$ or $x + y = 12$ **scaffold is** easy scale, given 3 points plotted, and an almost complete table of values
1. **scaffold to** draw the line e.g. $y = 3x + 2$ or $y = 16 - 2x$ or $x + y = 12$ **scaffold is** easy scale, given 3 points plotted NO TABLE

expandLinear

11. expand and simplify e.g. $4(3 - 2x) - (3x - 1)$
10. expand e.g. $-3(4x - 3y)$ or $-(4x - 3y)$
9. expand e.g. $3(4x - 3y)$
8. expand and simplify e.g. $4(2x - 3) + (3x - 1)$
7. expand and simplify e.g. $4(2x - 3) + 2(3x - 1)$
6. expand $4(3 - 2x)$ {order may surprise some learners}
5. expand e.g. $4(2x - 3)$
4. expand e.g. $5(x + 3)$ or $5(x - 3)$
3. **scaffold to** expand e.g. $5(x + 3)$ or $5(x - 3)$ **scaffold is** claw and arrow to invisible ... sign
2. **scaffold to** expand e.g. $5(y - 3)$ **scaffold is** claw and arrow to invisible \times sign and hints $5 \times y = \dots$ and $5 \times 3 = \dots$ and incomplete answer line $\dots - \dots$
1. **scaffold to** expand e.g. $5(y + 3)$ **scaffold is** claw and arrow to invisible \times sign and hints $5 \times y = \dots$ and $5 \times 3 = \dots$ and incomplete answer line $\dots + \dots$

expandQuadratic

12. expand and simplify e.g. $(4x - 3y)(2x - y)$
10. expand and simplify e.g. $(2x - 3)(3x - 1)$
9. expand e.g. $4x(2x - 3)$
8. expand e.g. $x(2x - 3)$
7. expand and simplify e.g. $(x + 4)(x - 4)$ {always difference of two squares}
6. expand and simplify e.g. $(x - 3)(x - 4)$ {always negative \times negative}
5. expand and simplify e.g. $(x - 3)(x + 4)$ {never negative \times negative}
4. expand e.g. $x(x - 4)$
3. **scaffold to** expand and simplify e.g. $(x + 4)(x - 3)$ {exactly one subtract sign} **scaffolds for** claw and boxes method
2. **scaffold to** expand and simplify e.g. $(x + 4)(x + 3)$ {only plus} **scaffolds for** claw and boxes method
1. **scaffold to** expand e.g. $y(y + 4)$ or $x(x - 3)$ **scaffold is** claw and arrow to invisible ... sign

factorise

8. factorise quadratics of the form $x^2 \pm bx - c$ {only a few ways to factorise c }
7. factorise quadratics of the form $x^2 \pm bx + c$ {only a few ways to factorise c }
6. factorise e.g. $y^2 - 49$
5. factorise e.g. $6xy - 9y^2$
4. factorise e.g. $p^2 + 5p$
2. factorise e.g. $5x + 10$

inequality

7. write the error interval for e.g. $x = 7.2$ to 1 d.p. {NOT 7.0}
6. **scaffold to** write range of values e.g. $L = 18\text{cm}$ to nearest cm **scaffold is** to complete $\dots \leq L < \dots$
5. from diagram write the algebraic inequality e.g. $x < 3$ or v.v.
4. from diagram write the algebraic inequality e.g. $-2 \leq x < 3$
3. from algebraic inequality e.g. $-2 \leq x < 3$ write down all possible values of the integer x
2. from diagram write down all possible values of the integer x for e.g. $-2 \leq x < 3$ {some $<$ }
1. from diagram write down all possible values of the integer x for e.g. $-2 \leq x \leq 3$ {only \leq }

sequenceArithmetic

16. is {a given number} a term of the sequence with n th term e.g. $4n - 6$? explain
15. write down the first 3 terms of the sequence where the n th term is given by e.g. $3n + 1$
14. write down e.g. the 20th odd number or write down the n th term of the sequence 1, 3, 5, 7
13. explain how you know if {a given number} is a term of e.g. the sequence 1, 5, 9, 13
12. given 3 “matchstick” diagrams how many “matchsticks” in e.g. pattern number 6
11. find the term to term rule and next term or e.g. 8th term of the sequence e.g. 16, 13, 10, 7
10. find e.g. the 10th term of the sequence 1, 5, 9, 13
9. find n th term of e.g. the sequence 1, 5, 9, 13
8. **scaffold to** find n th term of e.g. the sequence 1, 5, 9, 13 **scaffold is** given $4n$ is the n th term of 4, 8, 12, 16
7. write down the n th term of e.g. the sequence 4, 8, 12, 16
6. draw next “matchstick” diagram and complete 2 more values in table
5. find the term to term rule and next term of e.g. the sequence 1, 5, 9, 13
4. **scaffold to** find the term to term rule and next term of e.g. the sequence 1, 5, 9, 13 **scaffold is** hint rule is $+$?.
3. **scaffold to** find term to term rule **scaffold is** e.g. Is rule $+2$ correct? Explain
2. **scaffold to** complete the next 2 terms of sequence given term to term rule **scaffold is** terms in speech bubbles and fingers hint
1. **scaffold to** complete the next 2 terms of sequence given e.g. term to term rule is $+3$ **scaffold is** terms in speech bubbles and examples counting on using {in this case} 3 fingers

sequenceOther

8. **scaffold to** find n th term of e.g. 4 12 24 40 **scaffold is** told n th term of 2 6 12 20 is $n^2 + n$ {adjustment may be e.g. $\times 2$ or $\div 2$ or $- 3$ etc}
6. **scaffold to** continue sequence of Fibonacci numbers **scaffold is** shown method to generate sequence
4. **scaffold to** continue sequence of triangle numbers **scaffold is** shown method to generate sequence

simplifyPQ

14. simplify e.g. $(2a^2)^3$
13. simplify e.g. $(a^4)^3$
12. simplify e.g. $\frac{18a^5b^2}{3a^2b}$
11. simplify e.g. $3a^2b \times 4a^3b^4$
10. simplify e.g. $q^5 \div q^3$ or $\frac{q^5}{q^3}$ or $q^5 \div q$
9. simplify e.g. $a \times 3a$ or $3a \times 2a$
8. simplify e.g. $3a \times b$ or $3a \times 2b$ {but not $3a \times a$ }
7. simplify e.g. $f^3 \times f^2$ {or $f^3 \times f$ }
6. simplify e.g. $2a \times 3$ or $2 \times a \times 3$ or $2 \times 3a$ {harder because must do more than miss out \times signs}
5. **scaffold to** simplify e.g. $f^3 \times f^2$ {or $f^3 \times f$ } **scaffold is** asked to complete writing out question in long winded way first
4. simplify e.g. $a \times a \times a \times a \times a$
3. e.g. Name wrote $f + f + f + f = f^4$ is Name correct?
2. **scaffold to** simplify e.g. $a \times 2$ and $a \times a$ **scaffold is** given less mathematical way e.g. a^2 and aa asked to complete in a more mathematical way
1. simplify e.g. $2 \times a$ or $3 \times a \times b$ or $a \times b$ {easier because always written in correct algebraic order so just miss out \times signs}

simplifySD

10. simplify e.g. $3xy - 5xy$ or $-3y^2 + y^2$
9. simplify e.g. $5a + 3b + 7 + 5a - 2b - 4$
8. simplify e.g. $3a + 5 + 5a - 2$
7. simplify e.g. $3a + 5b + 5a - 2b$
6. simplify e.g. $5a - a$ or $5a + a + a + 2a$ or $5a - 2a - 2a$ {always $\pm a$ }
5. simplify e.g. $5a - 3a$ or $3a - 5a$ or $-3a + 5a$ or $-3a - 5a$ {never $\pm a$ }
4. simplify e.g. $-3a - 5a$
3. simplify e.g. $a + a + a + a + a$
2. **scaffold to** simplify e.g. $5a - 3a$ or $2x - 6x$ or $-3y + 7y$ **scaffold is** diagram {never $\pm a$ }
1. simplify e.g. $3a + 5a$

solve

5. solve e.g. $4g + 7 = 6g + 1$ { x on both sides, never negatives, solution is integer}
4. solve e.g. $d + d + d = 54$ or $7d - 2d = 35$
3. solve e.g. $3c + 5 = 17$ or $3(c - 5) = 21$
2. solve e.g. $3b = 36$ or $\frac{b}{3} = 9$
1. solve e.g. $a + 9 = 17$ or $a - 9 = 17$

solvingReady

14. solve {2 operation} e.g. $3\star + 5 = 17$ or $\frac{\star}{5} - 2 = 4$ or $3(\star + 5) = 21$ or $\frac{\star - 2}{5} = 2$
13. **scaffold to solve** e.g. $3(\star + 5) = 21$ or $\frac{\star - 2}{5} = 2$ **scaffold is** empty 2 operation function diagram
12. **scaffold to solve** e.g. $3(\star + 5) = 21$ or $\frac{\star - 2}{5} = 2$ **scaffold is** clues re order of operation and empty 2 operation function diagram
11. **scaffold to solve** e.g. $3\star + 5 = 17$ or $\frac{\star}{5} - 2 = 4$ **scaffold is** empty 2 operation function diagram
10. **scaffold to solve** e.g. $3\star + 5 = 17$ or $\frac{\star}{5} - 2 = 4$ **scaffold is** some clues in 2 operation function diagram and reminder of invisible \times sign or fraction \div sign
9. solve a {2 operations} thinking of a number problem
8. **scaffold to solve** a {2 operations} thinking of a number problem **scaffold is** empty function diagram
7. solve a {1 operation either \times or \div } thinking of a number problem
6. **scaffold to solve** an e.g. $\times 4$ thinking of a number problem **scaffold is** empty block and function diagrams
5. **scaffold to solve** an e.g. $\div 5$ thinking of a number problem **scaffold is** empty block and function diagrams
4. **scaffold to use** function diagram **scaffold is** use partially complete function diagram to solve e.g. $\star + 7 = 22$ or $22 - \star = 7$ {total to 25}
3. solve e.g. $\star + 7 = 15$ or $16 - \star = 7$ {maximum $8 + 9 = 17$ }
2. **scaffold to solve** e.g. $\star + 7 = 15$ **scaffold is** given empty block diagram
1. **scaffold to solve** e.g. $\star + 7 = 15$ **scaffold is** given block diagram and asked to complete the 3 solve equations NOT actually solve

valueAlgebra

9. find e.g. cost from word formula {1 or 2 stage }
7. write down the value of e.g. C when $C = 2a + 3b$ and $a = 5$ and $b = -2$ {never negative times negative}
6. write down the value of e.g. C when $C = 2a + 3b$ and $a = 5$ and $b = 2$ {both positive}
5. write down the value of e.g. C when $C = 2a$ and $a = 5$ {only positive}
4. **scaffold to** write down weight in terms of b and in kg {given $b = 5$ kg} **scaffold is** given picture context e.g. b is weight (sic) of one box
3. **scaffold to** work out the value of e.g. $5b$ when $b = 20$, **scaffold is** given picture context and example such as $3b = 60$

writeAlgebra

10. write an expression or a formula e.g. $5a + 3$ or $T = 5a + 3$
9. **scaffold to** write an expression or a formula e.g. $5a + 3$ or $T = 5a + 3$ **scaffold is** given context which leads from $5a$ to $5a + 3$
7. write an expression or a formula e.g. $5a$ or $T = 5a$
6. **scaffold to** write an expression or a formula e.g. $5a$ or $T = 5a$ **scaffold is** standard multiply word formula {to help learners to recognise contexts which require multiply}
5. **scaffold to** write an expression or a formula e.g. $5a$ or $T = 5a$ **scaffold is** write a calculation first {given value of a }
3. write an expression e.g. $a + b + c$
2. **scaffold to** know meanings of calculation, expression and formula **scaffold is** match or complete given e.g. $T = a + b + c$ and values of a and b and c