Ordered strictly alphabetically

algebraGraph

9. draw e.g. x = 3 or y = 2 or y = ±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 = ±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 × sign and hints $5 \times y = ...$ and $5 \times 3 = ...$ and incomplete answer line ... - ...

1. **scaffold to** expand e.g. $5(y + 3)$ **scaffold is** claw and arrow to invisible × sign and hints $5 \times y = ...$ and $5 \times 3 = ...$ and incomplete answer line ... + ...

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. $L = 18$cm to nearest cm **scaffold is** to complete $\ldots \le L < \ldots$

 5. from diagram write the algebraic inequality e.g. $x < 3$ or v.v.

 4. from diagram write the algebraic inequality e.g. $-2 \le x < 3$

 3. from algebraic inequality e.g. $-2 \le x < 3$ write down all possible values of the integer x

 2. from diagram write down all possible values of the integer x for e.g. $-2 \le x < 3$ {some $<$}

 1. from diagram write down all possible values of the integer x for e.g. $-2 \le x \le 3$ {only $\le$}

sequenceArithmetic

16. is {a given number} a term of the sequence with nth term e.g. $4n - 6$? explain

15. write down the first 3 terms of the sequence where the nth term is given by e.g. $3n + 1$

14. write down e.g. the 20th odd number or write down the nth 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 nth term of e.g. the sequence 1, 5, 9, 13

8. **scaffold to** find nth term of e.g. the sequence 1, 5, 9, 13 **scaffold is** given $4n$ is the nth term of 4, 8, 12, 16

7. write down the nth 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 nth term of e.g. 4 12 24 40 **scaffold is** told nth 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. $\dfrac{18a^5b^2}{3a^2b}$

11. simplify e.g. $3a^2b \times 4a^3b^4$

10. simplify e.g. $q^5 \div q^3$ or $\dfrac{q^5}{q^3}$ 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. $a2$ 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

9. solve linear: solution is fraction

8. solve {2 stage equation, including $\dfrac{x+3}{4}$ and $\dfrac{x}{4}+3$, solution: integer including 0 small negative and large e.g. 97}

6. solve e.g. $2f + 3 = 17 - 5f$ {x on both sides, one subtracted: solution is small positive integer}

5. solve e.g. $4e + 7 = 6e + 1$ {x on both sides, none subtracted: solution is small positive 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 $\dfrac{b}{3} = 9$

1. solve e.g. $a + 9 = 17$ or $a - 9 = 17$

solveSimultaneous

10. solve simultaneous {both equations need multiplying, solution: small integer (either sign) or □.5}

8. solve simultaneous {any of previous skills, however solution, small integer (either sign) or □.5}

7. **scaffold to** solve simultaneous {solution: small integer (either sign) or □.5 } **scaffold is** given hint to multiply one equation by negative one

6. solve simultaneous {only one equation needs multiplying, then addition makes it easy e.g. $3x + 4y = 10$ and $5x - 2y = 8$ solution: small positive integer}

5. solve simultaneous {by intersection of linear graph and curved graph, both drawn}

4. solve simultaneous {addition makes it easy e.g. $3x + 4y = 10$ and $5x - 4y = 6$ solution: small positive integer}

3. solve simultaneous {one is very easy to solve e.g. $4y = 12$ solution: small positive integer}

2. solve simultaneous {both with same subject e.g. $y = 6x - 2$ and $y = 2x + 1$, solution: small positive integer} LESLEY pre requisite is solve (6)

1. solve simultaneous {by intersection of 2 linear graphs, both drawn}

solvingReady

14. solve {2 operation} e.g $3 \star + 5 = 17$ or $\dfrac{\star}{5} - 2 = 4$ or $3(\star + 5) = 21$ or $\dfrac{\star - 2}{5} = 2$

13. **scaffold to** solve e.g. $3(\star + 5) = 21$ or $\dfrac{\star - 2}{5} = 2$ **scaffold is** empty 2 operation function diagram

12. **scaffold to** solve e.g. $3(\star + 5) = 21$ or $\dfrac{\star - 2}{5} = 2$ **scaffold is** clues re order of operation and empty 2 operation function diagram

11. **scaffold to** solve e.g. $3 \star + 5 = 17$ or $\dfrac{\star}{5} - 2 = 4$ **scaffold is** empty 2 operation function diagram

10. **scaffold to** solve e.g. $3 \star + 5 = 17$ or $\dfrac{\star}{5} - 2 = 4$ **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}

8. write down the value of e.g. C when C = 2a + 7 , where a is an integer

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 $3b = 60$

2. **scaffold to** work out e.g. number of chairs given c = 7r and r = 2 **scaffold is** hint re invisible times sign and 7s row of times table grid

1. work out e.g. number of packs of crisps given P = b + c + v and b = 7, c = 4 and v = 3

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}

4. **scaffold to** write a formula e.g. M = 7b **scaffold is** given a word formula

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

1. **scaffold to** write expression e.g. a + b + m **scaffold is** given another example and a context