Pre assess saves teachers using timely practice time:

   (a) when teaching (quicker & easier to teach students within their proximal learning zone)

   (b) with timely practice (students do far fewer questions on work they "know already")

This document should be printed out **for each class** and used for planning teaching.

   If you pre assess more strands, please note this within the appropriate section.

   More pre assess may be sensible for some students (Lesley can advise/set this for you)

   The pre assess is planned in batches, allow 30 minutes (Calculator encouraged 15 minutes).

Number **NC** (no calculator) - these are found in two topic areas

   Number: factors and primes 1, 3, negative no calc 1, 2, 3, 4, 6, place value: integer 3, 4

   Number: value of: index 1, place value: decimal 2, 3, ×/÷ by 10/100/1000 3, 7, 9, 12, 13

   Number: FDPR as NC 1, 4, 6, fraction +/-/×/÷ 1, 2, % and percentage NC 1, 3

   Word and Proportion: fraction of 1, 2, 5, types of number 2, 3

Calculator encouraged **CALC** - these are found in three topic areas - allow 15 minutes

   Number: calculator skills 1, 4, FDPR as CALC 1, 4

   Word and Proportion: FDPR of CALC 1, 4, how much enough CALC 2

   Geometry and Measurement: area 6, perimeter 6

Word and Proportion problems **NC** The **order of setting** these is important, as for many
   students, once they meet two add problems, they will add for all the subsequent problems.

   Encourage students to write down which sum they would do, even if they can't do it.

   single, single: add NC 1, multiply NC 1, subtract NC 1, multiply NC 3

   double, single: divide NC 1, add NC 5, multiply NC 5, divide NC 2, subtract NC 5,

   double, double: add NC 4, subtract NC 3, add NC 8

   other word problems: best value 1, how much enough NC 1, 3, ratio 1, ingredients 1

Algebra **NC**

   algebra graph 1, expand 1, inequality, equality and expression 1, number machine 2, 3

   sequence: arithmetic 2, 4, simplify +/- 2, 4, simplify ×/÷ 1, 3, 5

   value of: algebra 1, 4, write in algebra 1, 2

Geometry and Measurement **NC** needs angle measurer, ruler, tracing paper

   area 2, 3, angle: calculate 3, change units 1, 2, 3, coordinates point/shape 2, 4,

   diagram: accurate interpret 2, 3, 5, shape: names and properties 3, 4, 6, 10, perimeter 1, 3

   transform: shape 2, 4, 6, 7, volume 2

Probability and Statistics **NC**

   different ways & simple probability 1, 3, 5, discrete data graphs 3, 4, 6

   frequency or probability table 2, 3, 4, 5, MMMRQ 1, 2, 3, scatter 2, stem and leaf 1, 2

   Venn 1, 4

Number: calculator skills   **pre assess: 1, 4** (with Calculator encouraged pre assess)

(1) Use your calculator to work out 5.1×3.4 or $\dfrac{17.34}{5.1}$ or $17.34 \div 5.1$

(2) Use your calculator to work out 5.1^2 or 5.1^3

(3) Use your calculator to work out $\sqrt{26.01}$ or $\sqrt[3]{132.651}$

(4) {mix of skills from (1), (2) and (3) e.g. $\dfrac{5.67 + 1.09}{9.2 - 7.65}$ or $10.4^2 + \sqrt{460}$}

Number: correct to   **pre assess: not reliable with only 1 question** pre w/s best

(1) Write 1823.56734 correct to the nearest whole number.

(2) Write 1823.56734 correct to 1 decimal place.

(3) Write £1823.56734 correct to the nearest pence.

(4) Write 1823.56734 correct to 2 decimal places.

(5) Write 1823.56734 correct to 3 decimal places.

(6) Write 1 823 476 correct to the nearest 10

(7) Write 1 823 476 correct to the nearest 100

(8) Write 1 823 476 correct to the nearest 1000

(9) Write 3.56734 correct to 1 significant figure. $\{1 < n < 10 \text{ and } n > 20\}$

Number: estimate and accuracy   **pre assess: for MORA only**

(1) {Estimates are all U $\times$ U BUT all "chop" never round up e.g. 6.1×8.3}

Number: factors and primes   **pre assess: 1, 3**

(1) Write 700 as a product of its prime factors {only $\div 2$ or $\div 10$ required}

(2) Write 216 as a product of its prime factors {also $\div 9$ and split into 3×3 required}

(3) Write down all the factors of 20

Number: FDPR as CALC (fraction, decimal, percentage, ratio) **pre assess: 1, 4** (with calculator)

(1) Shade in 64% of the square below.
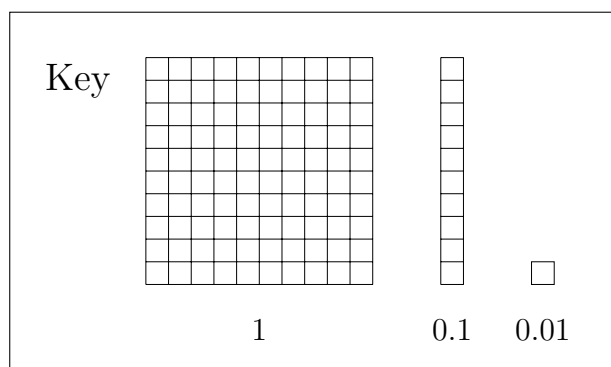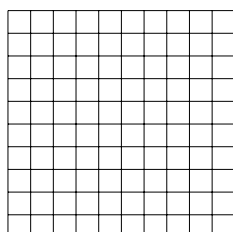
Write 64% as a decimal (You may use a calculator or the Key if this helps you)

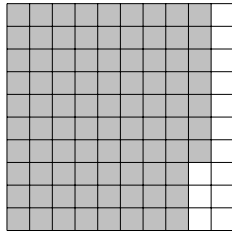(2) Write $\dfrac{11}{16}$ {or $\dfrac{21}{16}$} as a decimal.

{strands 3 to 5 next page}

Number: FDPR as CALC continued(fraction, decimal, percentage, ratio)

    (3) {Shade in 100 square(s) given F, D or P, convert to different F, D or P}

    (4) Write 0.06 {or 0.46, 0.6, 2, 8.3407} as a percentage.

    (5) Write $\dfrac{11}{16}$ {or $\dfrac{21}{16}$} as a percentage.

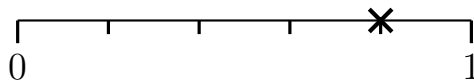Number: FDPR as NC (fraction, decimal, percentage, ratio)   **pre assess: 1, 4, 6**

    (1) Part of this 100 square is shaded.

Write down the

      (i) fraction shaded   . . . .

      (ii) percentage shaded   . . . . %

    (2) Write 53% as a fraction or write $\dfrac{19}{100}$ as a percentage.

    (3) A probability is shown on this probability line with a cross.

   0   1 Write down the probability shown as a fraction.

    (4) Write 142% or 42% or 3% or 0.4% or 0.27% as a decimal.

    (5) Write 0.08   as a percentage. {includes removing leading 0's when necessary}

    (6) The ratio of the number of premium seats to the number of standard seats is 1 : 4

      What fraction of the seats are premium seats?

    (7) The fraction of boys in a class is $\dfrac{3}{5}$

      Write down the ratio of the number of boys to the number of girls in the class.

    (8) Write   0.9   as a percentage. {includes removing leading/adding trailing 0's }

    (9) Write 40% as a decimal {includes adding leading/removing trailing 0's}

    (10) {Word intro} Express 12 as a fraction of 72.

      Give your answer in its simplest form.

    (11) {Word intro} Write down the ratio of the number of A to the number of B.

      Give your answer in its simplest form. {e.g. A = 90, B = 36}

Number: fraction +/-/×/÷   **pre assess 1, 2**

    (1) Work out $\dfrac{5}{7} + \dfrac{1}{7}$ {or $\dfrac{5}{7} - \dfrac{1}{7}$}

    (2) Work out $\dfrac{2}{3} \text{ x } \dfrac{2}{5}$

    (3) Work out $\dfrac{1}{3} + \dfrac{2}{9}$ {one denominator is a multiple of the other}

    (4) Work out $\dfrac{5}{6} - \dfrac{1}{3}$ {one denominator is a multiple of the other}

Number: negative no calc   **pre assess 1, 2, 3, 4, 6**

(1) Write down the number shown on this number line
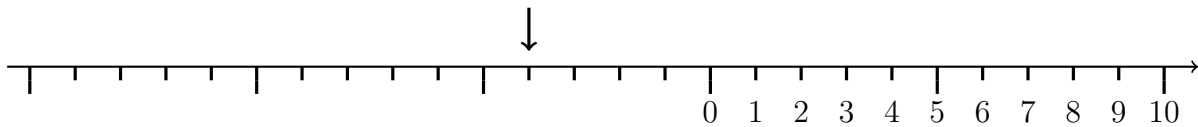
(2) Write the following numbers in order.

-1,   -3,   8,   -2,   1,   5,   -11

(3) Work out   9 - 12

(4) Work out   - 5 + -6

(5) Work out   -12 + 9 or   -3 + 9

(6) Work out -2×3 or 4×-2

Number: % and percentage NC   **pre assess 1, 3** (as a percentage now in FDPR as NC)

(1) Work out 50% of £840 {ONLY even digits}

(2) Work out 50% of £78 {includes odd digits}

(3) Work out 10% of £54 200

(4) Work out 5% of £35 {or 1% or 20% or 25%}

(5) Work out 30% of £4200{or 15% or 75%}

(6) Work out 40% of £520{or 2% or 80% or 2.5%}

(7) {Word problem e.g. calculate 20% of 240}

Number: place value: decimal   **pre assess 2, 3**

(1) Write down the value of the 3 {or 4} in the number 12.34567

(2) Write these numbers in order of size. {Start with the smallest/largest/not told}

(a) 0.6   0.0006   6   0.006   0.06   (b) 0.61   0.49   0.58   0.47   0.67   0.21

(3) Use the information that $3 \times 7 = 21$ to find the value of 0.3×7

(4) Work out 2×0.6

(5) Work out 2×0.06

(6) Work out 0.2×0.6

(7) Use the information that $452 \times 57 = 25764$

to find the value of 45.2×57 or 452×0.57

(8) Write these numbers in order of size.   0.56   0.65   0.6   0.5   0.06

Number: place value: integer   **pre assess 3, 4**

  (1) {Order a set of two digit numbers.}

  (2) Write down the value of the digit 2 {or 3 or 4} in the number 12 345

  (3) {Order a set of {two and} three digit numbers.}

  (4) Use the information that $8 \times 3 = 24$ to find the value of 8×30

  (5) Work out 5×90 {Excludes any where simplest product ends with 0 e.g. 5×60 etc}

  (6) Work out 400×6 {Excludes any where simplest product ends with 0 e.g. 500×6 etc}

  (7) Work out 40×20 {Excludes any where simplest product ends with 0 e.g. 50×60 etc}

Number: standard form   **pre assess: for MORA only**

  (1) Write 7.306×10^2 as an ordinary number

  (2) Write 3.9×10^{-3} as an ordinary number

  (3) Write 56.3 in standard form

Number: $\times/\div$ by 10/100/1000   **pre assess: 3, 7, 9, 12, 13**

  Wording (a) Complete this calculation $\square \times 10 = $ ...... or (b) Write down the value of

  (1) {U $\times$ 10} 9×10

  (2) {T0 or H00 $\times$ 10} 10×50 or 500×10

  (3) {TU or HTU $\times$ 10}

  (4) {U or TU or HTU $\times$ 100 or 1000}

  (5) {T0 or HT0 or ThHT0 $\div$ 10} (a) $\dfrac{600}{10}$ (b) $4930 \div 10$

  (6) {decimal with . $\times$ 10 no change to 0's} (a) 9.7×10 (b) 10×3.075

  (7) {decimal with . $\div$ 10 no change to 0's} $817.49 \div 10$

  (8) {integer $\div 10$ add . no change to 0's} $81 \div 10$

  (9) {decimal with . $\times 10^n$ add trailing 0's} 36.8×100

  (10) {decimal with . $\div 10^n$ no change to 0's} $7016.9 \div 100$

  (11) {integer $\div 10^n$ add . no change to 0's} $231 \div 100$

  (12) {decimal with . $\times 10^n$ remove leading 0's} 0.00625×10

  (13) {decimal with . $\div 10^n$ add leading 0's} $42.3 \div 1000$

  (14) {integer $\div 10^n$ add . add/remove 0's} $30 \div 100$

Number: value index   **pre assess: 1**

  (1) Ffion says that the value of 9^2 is 18 {Is she correct ? Give a reason for your answer.}

  (2) Circle the correct way way to write 4^3

      (i) $4 \times 4 \times 4$ (ii) $3 \times 3 \times 3 \times 3$ (iii) $4 + 4 + 4 + 4$ (iv) $3 + 3 + 3$

  (3) Write down the value of 6^2 {7^2 or 8^2} or 2^3 {3^3, 4^3, 5^3, 10^3, 10^4 or 10^5} **pre w/s best**
      or 2^4 {2^5, 2^6, 2^7, or 1^2, 1^3, 1^4 or 1^5}

Word and Proportion: **pre assess: mixed bag suggested as follows**

    single, single: add NC 1, multiply NC 1, subtract NC 1, multiply NC 3

    double, single: divide NC 1, add NC 5, multiply NC 5, divide NC 2, subtract NC 5,

    double, double: add NC 4, subtract NC 3, add NC 8

Word and Proportion: add NC   **pre assess: see order above 1, 4, 5, 8**

    (1) {word problem U + U}

    (2) {word problem TU + U, no carry}

    (3) {word problem teen + U, no carry}

    (4) {word problem TU + TU, no carry}

    (5) {word problem TU + U, units carry}

    (6) {word problem TU + TU, units carry}

    (7) {word problem TU + TU, tens carry}

    (8) {word problem TU + TU, tens and units carry}

Word and Proportion: subtract NC   **pre assess: see order above 1, 3, 5**

    (1) {word problem U - U}

    (2) {word problem TU - U or TU - TU, NO carry}

    (3) {word problem TU - teen, NO carry}

    (4) {word problem TU - TU, WITH carry}

    (5) {word problem TU - U, WITH carry}

    (6) {word problem TU - teen, WITH carry}

    (7) {word problem mix of multiple adds and multiple subtracts, some with carry}

Word and Proportion: multiply NC   **pre assess: see order above 1, 3, 5**

    (1) {word problem 2, 9 or 10 × U}

    (2) {word problem 4 or 5 × U (not covered in 1) }

    (3) {word problem 3, 6, 7 or 8 × U (not covered in 1 or 2) }

    (4) {word problem U × teen }

    (5) {word problem U × TU}

    (6) {word problem TU × TU}

    (7) {word problem TU ×£U.t0 }

Word and Proportion: divide NC   **pre assess: see order above 1, 2**

    (1) {word problem ? ÷ 2, 9 or 10 = U}

    (2) {word problem ? ÷ 3, 4, 5, 6, 7 or 8 = U}

    (3) {word problem ? ÷ U = teen e.g. 11 or 13 etc.}

    (4) {word problem ? ÷ U = TU}

Word and Proportion: add NC   **see page 6**

Word and Proportion: best value   **pre assess: 1**

    (1) Kaja wants to buy 4 fish cakes.

        A shop sells the same type of fish cakes in two different size packets.

            2 fish cakes for £1.25

            4 fish cakes for £2.19

        Which size packet is best value for money?

        You must show all your working.

        {or buy 1 (or 2) get one free, or family ticket v separate adult and child ticket}

    (2) {also need to convert between kg and grams or litres and *ml*}

    (3) {compare 3 shops with different deals or buy multiples of 2 two different items}

    (4) {Similar to (1) but we are NOT told how much the person wishes to buy}

Word and Proportion: divide NC   **see page 6**

Word and Proportion: exchange rate   **pre assess: for MORA only**

    The exchange rate is £1 = 1.216 euros.

    (1) {Word problem change from pounds to euros}

    (2) {Word problem change from euros to pounds}

Word and Proportion: FDPR of CALC (fraction, decimal, percentage, ratio)

                               pre assess: 1, 4 (with calculator pre assess)
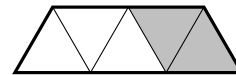
    (1) Work out 68% {or 328%} of 90

    (2) Work out $\frac{1}{6}$ {or $\frac{5}{6}$} of 186

    (3) {word problem - work out percentage of required}

    (4) {word problem - work out fraction of required}

Word and Proportion: fraction of NC   **pre assess: 1, 2, 5**

    (1) Write down the fraction of the shape that is shaded.

    (2) Work out $\frac{1}{9}$ of 54 {ONLY unit fraction}

    (3) Work out $\frac{7}{9}$ of 36 {NEVER unit fraction}

    (4) {word problem ONLY unit fraction} e.g. $\frac{1}{8}$ of 240

    (5) {word problem NEVER unit fraction} e.g. $\frac{3}{8}$ of 240

    (6) {fraction of **not** word problem e.g. $\frac{2}{5}$ of 45 days had rain, how many days had no rain.

Word and Proportion: how much enough CALC **pre assess: 2** (with calculator pre assess)

    (1) {word problem requires add of a few values (money, length or weight) }

    (2) {word problem requires multiply a value (money, length or weight) by a frequency}

    (3) {word problem requires multiply and add (money, length or weight)

    (4) {word problem like (1), (2) or (3) but require a change of unit}

Word and Proportion: how much enough NC   **pre assess: 1, 3**

    (1) {simple money word problem: pence + pence OR pounds + pounds}

    (2) {add 2 to 4 values (money, length or weight) and say whether enough}

    (3) {given amount paid and change received/cost find cost/change received}

    (4) {buys some items (given prices) and amount tendered must find change}

    (5) {buys some items (given prices) and (mystery price) given amount tendered and change}

Word and Proportion: ingredients   **pre assess: 1**

    Given list of ingredients for 4 people {or 20 biscuits etc}

    (1) Write out a list of ingredients for 8 people {only ×2}}

    (2) {write out ingredients/just one ingredient for 12 people (×3 or ×4 or ×10)}

    (3) {write out ingredients/just one ingredient for for 2 people (×0.5 or ×1.5 or ×2.5)}

Word and Proportion: multiply NC   **see page 6**

Word and Proportion: ratio   **pre assess: 1**

    Faith and Katy share £35 in the ratio 5 : 2

    (1) Work out how much each person gets

    (2) Work out how much more Faith gets than Katy}

    (3) {Similar to (1) but share into three parts}

    (4) Emelie and Fern share some money in the ratio 3 : 5

        Fern gets £800 {Questions set to mislead as 800÷8 is wrong but encouraged by numbers}

        Work out how much Emelie should have.

Word and Proportion: subtract NC   **see page 6**

Word and Proportion: types of number   **pre assess: 2, 3**

    From a list of numbers: 2   4   8   10   14   16   18   20   40   81

    (1) Write down a multiple of 6. {or even number or odd number}

    (2) Write down a factor of 28.

    (3) Write down a cube number. {or square number}

    (4) Write down a prime number.

Algebra: algebra graph   **pre assess: 1**

(1) Complete the table of values for x = 3 {OR y = 4, y = 3x + 2, y = 5 - x, no calculator}

x	3	3	3	3	3		
y	-2	-1	0	1	2	3	4

Plot on graph. {HINT plot in 1st quadrant then extend}

(2) {y = mx + c form, table always has x = 0 and x = 1 values, no calculator}

(3) {y = mx + c form, only 1 value in table (check digit), table on calculator encouraged}

Algebra: expand   **pre assess: 1**

(1) Expand $5(y + 2)$ or $5(y - 2)$

(2) Expand $y(y + 2)$ or $y(y - 2)$

(3) Expand and simplify $(x + 5)(x + 3)$ or $(x + 5)(x - 3)$ {NOT $(x - 5)(x - 3)$}

Algebra: factorise   **pre assess: for MORA only**

(1) Factorise $3p - 12$ or $12 - 3p$

Algebra: inequality, equality and expression   **pre assess: 1**

(1) Here is an inequality, in m, shown on a number line.

m is an integer.

List all the possible values of m.

(2) y is an integer such that $\quad -3 \leqslant y \leqslant 0$

List all the possible values of y.

(3) {Write down an inequality e.g. (1) or $x > -2$ or show $x > -2$ on number line.}

Algebra: number machine   **pre assess: 2, 3**

input $\longrightarrow$ | 1 stage | $\longrightarrow$ output   OR   input $\longrightarrow$ | 1st stage | $\longrightarrow$ | 2nd stage | $\longrightarrow$ output

(1) {1 stage} Work out the **output** when the input is ... {+, - , × U or ÷ by 2 or 9 or 10}

(2) {2 stage} Work out the **output** when the input is ... {+, -, × or ÷ U}

(3) {1 stage} Work out the **input** when the output is ... {+, -, × or ÷ U}

(4) {2 stage} Work out the **input** when the output is ... {+, -, × or ÷ U}

Algebra: sequence: arithmetic   **pre assess: 2, 4**

(1) Here is a number sequence   4   8   12   16   20   24   28

(i) All the numbers in the sequence are .... of .... {either multiples or 4 to fill in}

(ii) Write down the next term in the sequence

(2) Here are the first 5 terms of an arithmetic sequence.   5   9   13   17   21

(i) Write down the term to term rule of the sequence

(ii) Write down the next term of the sequence

(3) Here are the first five terms of an arithmetic sequence.   5   9   13   17   21

Find the 8th term of this sequence.

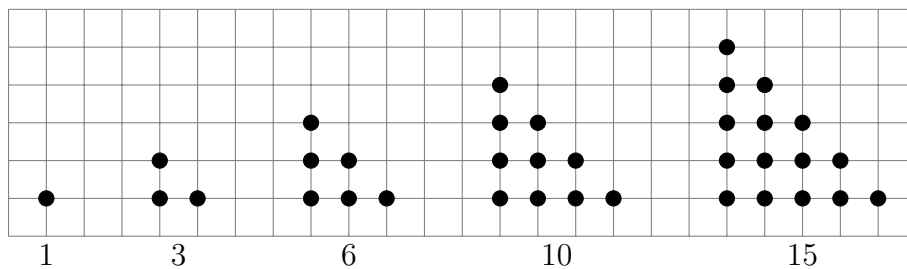Here is part of a sequence of patterns made from sticks.

Pattern number 1   Pattern number 2   Pattern number 3
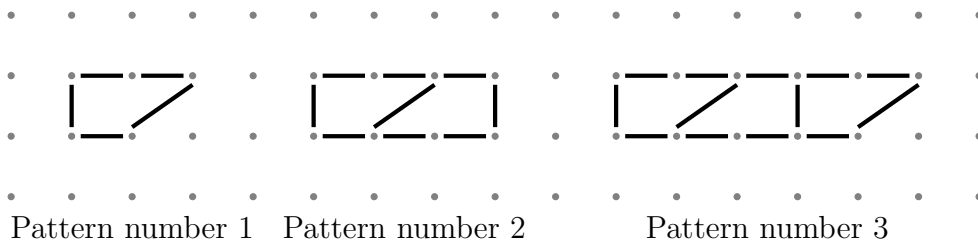
(4) (a) In the space, below draw {or complete} Pattern number 4

(b) Complete the table

Pattern number	1	2	3	4	5
Number of sticks	5	9	13		

Algebra: sequence: other   **pre assess: for MORA only**

(1) The number of dots {or squares} in each pattern is a triangle number.

1   3   6   10   15

Write down {or draw} the next {or missing} triangle number OR

The rule to continue a triangle number sequence is add on one more each time.

Write down the next triangle number.

(2) Here are the first seven terms of a Fibonacci sequence.

                1   1   2   3   5   8   13

The rule to continue a Fibonacci sequence is,

                the next term in the sequence is the sum of the two previous terms.

Find the 10th term of this sequence.

Algebra: simplify +/-   **pre assess: 2, 4**

    (1) Simplify $p + p + p + p$

    (2) Simplify $5a + 2a$ or $9y - 5y$ or $x + x + 3x$ or $5f + f + f - f$

    (3) Simplify $3x - 7x$ or $-2f - 5f$ or $-f + 4f$

    (4) Simplify $-4p - q + 5p - q$

Algebra: simplify x/÷   **pre assess: 1, 3, 5**

    (1) Simplify $x \times x \times x \times x \times x$

    (2) Simplify $4 \times p$ OR $p \times q$ OR $4 \times p \times q$ {remove $\times$ sign, no need to change order}

    (3) Simplify $d \times c$ OR $d \times 5$ OR $d \times 5 \times c$ OR $d \times d$ {change order or remember about $\square^2$}

    (4) Simplify $4a \times 2$ OR $2 \times 4a$ OR $2 \times a \times 4$

    (5) Simplify $e^7 \times e^3$ OR $y^6 \times y$ {think long winded-ly and then simplify}

    (6) Simplify $a \times 4d$ OR $4a \times d$ OR $4a \times a$

    (7) Simplify $2x \times 4y$ OR $3y \times 5x$ OR $3y \times 5y$

Algebra: solve   **pre assess: for MORA only**

    (1) Solve $\dfrac{q}{3} = 12$ {one stage}

    (2) Solve $\dfrac{w}{10} + 3 = 4$ {two stage, solution is integer between 1 and 15}

    (3) Solve $\dfrac{w}{10} + 3 = 2$ {two stage, solution is 0, 1, negative or easy decimal such as 2.5}

    (4) Solve $x + 19 = 3x + 7$ {x on both sides but no minus signs}

Algebra: value of: algebra   **pre assess: 1, 4**

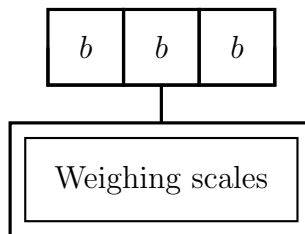   Here are some shapes made from scaffolding poles. {perimeter ... or weight ... or area}
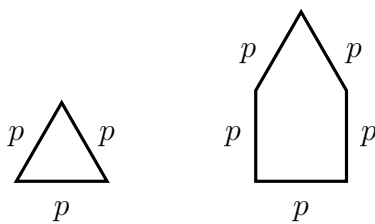
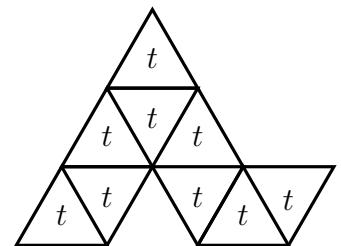p is the length of each scaffolding pole

$p = 5$ metre $b = 50$ grams $t = 8$ cm^2

(1) Complete this table   {or explain error in substituting}

shape	perimeter (in terms of p)	perimeter (metre)
triangle	$3p$	15
pentagon	$5p$	

Christopher says the boxes weigh 350 grams altogether.

Dion says the boxes weigh 150 grams altogether.

Write down who is correct Christopher or Dion.

You must give a reason for your answer.

Algebra: value of: algebra (continued)

(2) Write down the perimeter of the pentagon {weight or area}

(i) in terms of p ... OR b ... OR t

(ii) in metres .. OR grams ... OR cm^2

(3) $A = 4t$ {similar to (2) but no context}

$t = 8$

Find the value of A

(4) $p = 3$ {two terms, all positive integer}

$q = 8$

Work out the value of $7p + 2q$

(5) $p = 3$ {similar (4) but with one negative, never negative $\times$ negative}

$q = 8$

Work out the value of $7p - 2q$

Algebra: write in algebra   **pre assess: 1, 2**

(1) A multipack contains b packs of barbecue flavour crisps, and p packs of plain crisps.

Write down an expression for the total number of packs of crisps in the multipack.

(2) A hotel buys 7 packets of hand towels.

Each packet contains h hand towels.

They buy a total of T hand towels.

Write a formula for T, in terms of h.

(3) Joni has n packets of apples.

There are 6 apples in a packet.

(i) Write down an expression, in terms of n, for the total number of apples Joni has.

11 of Joni's apples are eaten.

(ii) Write down an expression, in terms of n, for the number of apples Joni has now.

Geometry and Measure: angle: calculate **pre assess: 3**

    (1) {Solve problem using: angle ... point ... 360°}

    (2) {Solve problem using: angle ... straight line ... 180°}

    (3) {Solve problem using: angle ... triangle ... 180°}

    (4) {Solve problem using: angle ... quadrilateral ... 360°}

    (5) {Solve problem using: ABC for labelling angles and one rule from (1) to (4)}
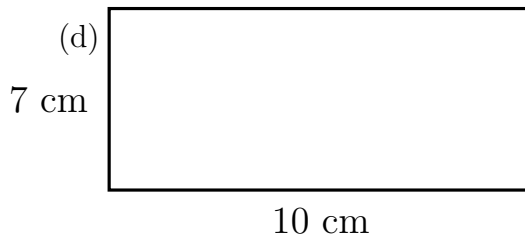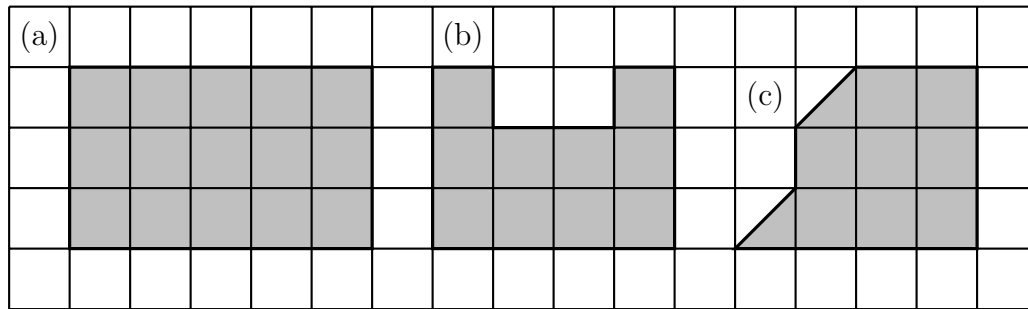
Geometry and Measure: area and perimeter **order of difficulty varies**

(d) 7 cm, 10 cm

Diagram NOT accurately drawn

Geometry and Measure: area **pre assess: 2, 3**

    (1) Find the area of the shaded rectangle (a) {or shape (b)}

    (2) Find the area of the shaded shape (c) {countable 1/2 squares}

    (3) Work out the area of the rectangle. (d) {NC}

    (4) {Work out area of rectangle, width = 15.3cm height = 6cm - calculator encouraged}

    (5) {Work out area of square, side length = 3.7km - calculator encouraged}

    (6) {Work out area of circle, radius = 6.5 metres - calculator encouraged}

    (7) {Work out area of parallelogram, width = 15.3 cm height = 6cm NC}

    (8) {Work out area of right angled triangle, width = 9 cm height = 5cm NC}

Geometry and Measure: perimeter **pre assess: 1, 3**

    (1) Find the perimeter of the shaded rectangle. {see diagram (a)}

    (2) Work out the perimeter of the rectangle. {see diagram (d)}

    (3) Find the perimeter of the shaded shape. {see diagram (b)}

    (4) {Work out perimeter of rectangle, width = 15.3 cm height = 6.2 cm}

    (5) {Work out perimeter of square, side length = 3.7 km}

    (6) {Work out circumference of a circle, diameter = 28.2 km, - calculator encouraged}

Geometry and Measure: change units {some are simple word problems}   **pre assess: 1, 2, 3**

    (1) Change 8.2 cm into mm.

    (2) Change 8.2 m into cm.

    (3) Change 3.127 kg into grams. {or litres to *ml* or km to metres: conversion × by 1000}

    (4) Change 400 millilitres into litres {or grams to kg or m to km: conversion ÷ by 1000}

    (5) Change 250 millimetres into centimetres { etc. conversion ÷ by 10, 100 or 1000}

    (6) How many minutes are there in $1\frac{3}{4}$ hours?

Geometry and Measure: coordinate point/shape   **pre assess: 2, 4**

    (1) {Plot coordinate in first quadrant}

    (2) {Write down coordinate of point found in the first quadrant}

    (3) {Plot/write down coordinate, diagram has only 1st and 2nd OR 1st and 4th quadrant}

    (4) {Plot coordinate in any quadrant}

    (5) {Write down coordinate of point in any quadrant}

Geometry and Measure: diagram: interpret accurate   **pre assess: 2, 3, 5**

    (1) Measure the length of the line PQ.

P Q {e.g. 5.6 cm}

    (2) Measure the length of PQ {Line not horizontal, other lines in diagram}

    (3) Write down the bearing of Q from P.
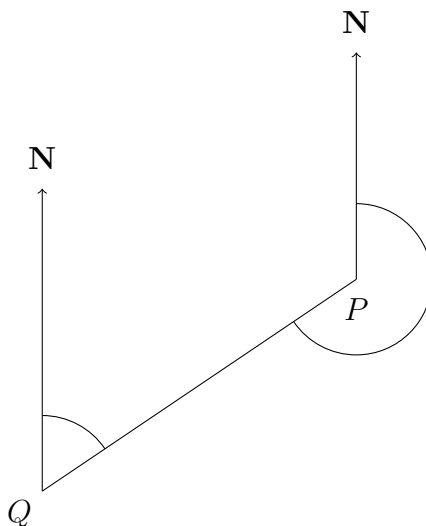
    (4) The diagram {above} shows the position of two check points P and Q.

        The scale of the diagram is 1 cm represents 10 km {or 1 km or 100km}

        Write down the distance from P to Q.

    (5) Measure an angle {measure from horizontal only}

Geometry and Measure: find A or V first (area or volume)   **pre assess: not suggested**

(1) Here is the net of a cuboid drawn on a grid of centimetre squares.
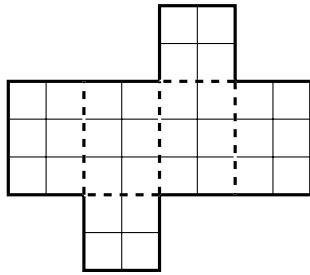
Work out the surface area of the cuboid.

Geometry and Measure: shape names and properties   **pre assess: 3, 4, 6, 10**

(1) {mathematical name / number of sides of a pent/hex/oct/dec -agon **pre w/s best**}

(2) Write down the mathematical names of given solid. **pre w/s best**

(3) Find/draw/complete shape with one {or two} lines of symmetry.

(4) Write down the order of rotational symmetry of a shape.

   mark centre of rotation/ complete shape with rotational symmetry of order {2/3/4}

(5) Write down the mathematical name of quadrilateral {or draw} **pre w/s best**

(6) Find congruent shapes

(7) Write down name of kind of angle {acute, right, obtuse, reflex} **pre w/s best**

(8) Write down the name of a solid {given net} **pre w/s best**

(9) Mathematical name for {circumference, centre, radius, diameter} **pre w/s best**

(10) Write down the number of faces, edges or vertices / shade the face of a solid ABCD

Geometry and Measure: transform: shape   **pre assess: 2, 4, 6, 7**

(1) Reflect the shaded shape in the mirror line. {mirror line touches shape}

(2) Reflect the shaded shape in the mirror line. {mirror line does NOT touch shape}

(3) Translate shape F four squares to the left. {translate in one direction 2/3/4/ left/right/up/down}

(4) Rotate trapezium F 90° clockwise {or anti-clockwise} about the star {touches shape}

(5) Reflect the shaded shape in the x-axis {or y-axes}

(6) Translate shape F four squares to the left and two squares up {or right or down}

(7) Draw an enlargement of a shape scale factor 2 {or 3, no sloping sides, or centre given}

(8) Rotate shape 90° {or 270°} {anti-}clockwise about a coordinate {touches shape}

   Rotate shape 180° about a coordinate {touches shape}

(9) Reflect the shaded shape in a diagonal mirror line. {shape not on squares of grid}

(10) Draw an enlargement of a shape scale factor 2 {or 3, sloping sides, no centre given}

Geometry and Measure: volume   **pre assess: 2**

   (1) Find the volume of the solid shape. {made from centimetre cubes}

(b)   (c)

(a)
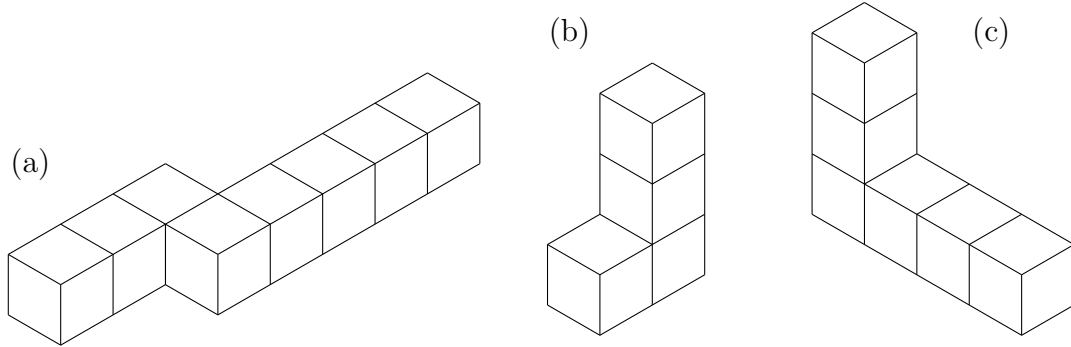
   (2) Find the volume of the solid shape. {cuboid made from centimetre cubes NC}

     { one dimension = 1cm, other two dimensions are large so hard for student to count}

   (3) Find the volume of the cuboid {e.g. 3×4×5, cubes shown NC}

   (4) Find the volume of the cuboid {e.g. 3×4×5, NO cubes shown NC}

Probability and Statistics: continuous data graph   **pre assess: for MORA only**

   Using given conversion e.g. 1 gallon = 4.5 litres

   (1) {Complete table, draw graph and convert from x-axis to y-axis}

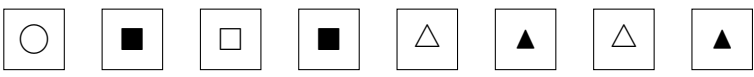   (2) {Similar to (1) but convert from y-axis to x-axis}

Probability and Statistics: different ways & simple probability   **pre assess: 1, 3, 5**

   (1) There are 7 good rulers and 2 broken ruler in a tray.

      A ruler is taken at random from the tray.

      What is the probability that the ruler is broken?

   (2) {Similar to (1) but probability of **not** }

   (3) India puts these tiles in a bag.   ◯ ■ □ ■ △ ▲ △ ▲

      India, shakes the bag and takes a tile, at random, from the bag.

      (i) Choose the word that best describes the probability that ....

         impossible   unlikely   evens   likely   certain

      (ii) On the probability scale below, mark with a cross (×) the probability that

      0         $\frac{1}{2}$ 1

      ... India takes a square.{possible to list all outcomes}

   (4) {tests the "mathematical" meaning of likely}

   (5) {Write down all the possible combinations of 2 independent events}

   (6) {Word problem where given a selection of experiments with different number of trials

      which is the best estimate OR find better estimate of probability}

Probability and Statistics: discrete data graphs   **pre assess: 3, 4, 6**

(1) Write down the number of ... {frequency required is numbered on the frequency axes}

Write down the number of ... {whole number of pictures in pictogram}

(2) Complete the bar chart {frequency required is numbered on the frequency axes}

Complete the pictogram{whole number of pictures in pictogram}

(3) Complete the tally {or frequency} chart

complete a bar chart, {both axes are already labelled}

or complete a pictogram, {table and key given}

(4) Write down the mode from bar chart or pie chart or pictogram or frequency table.

{data labels are things not numbers}

(5) Write down the number of ... {frequency required on on frequency axis, is NOT labelled}

Write down the number of ... {quarter, half or three quarters of picture in pictogram}

(6) Complete the bar chart {frequency required on on frequency axis, is NOT labelled}

Complete the pictogram{quarter, half or three quarters of picture in pictogram}

(7) Given frequency table, bar chart or pictogram e.g. coloured t-shirts sold
How many less/more colour A than colour B were sold ?
What colour was the t-shirt that more then/exactly/less than {frequency} were sold?
How many t-shirts were sold in {time frame}?
What fraction of the t-shirts sold were colour A ?

(8) Complete back to back pictogram, dual bar chart/frequency table.

Answer questions from back to back pictogram, dual bar chart/frequency table.

(9) Find errors in pictogram, bar chart, frequency table or pie chart.

Probability and Statistics: frequency or probability table   **pre assess: 2, 3, 4, 5**

In a school's meal deal a drink is included.

This table gives some information about which drink 120 people chose.

	Fizzy	Juice	Water
Girls	18	39	11
Boys	22	7	4
Teachers	3	5	11

One of the people is chosen at random.

(1) Write down the probability that the person was a boy who chose juice.

(2) Write down the probability that the person was a boy.

(continued)

Probability and Statistics: frequency or probability table (continued) **pre assess: 2, 3, 4, 5**

(3) The table shows the probability that a counter take at random from the bag ...

Colour	yellow	blue	red	green	white
Probability	0.24	0.31	0.2	0.1	

Work out the probability that the counter will be white.

(4) {Complete frequency tree - easier}

(5) {Given 2 way entry table grid EITHER partially complete

OR blank plus word clues, complete the table (and sometimes state a probability)}

(6) {Complete frequency tree - harder}

Probability and Statistics: MMMRQ (mean, median, mode, range and quartiles) **pre assess: 1, 2, 3**

(1) Write down the mode.

(2) Write down the range

(3) Write down the median {odd number of non ordered data items}

(4) Write down the mean

(5) Write down the median {even number of non ordered data items}

Probability and Statistics: probability tree **pre assess: for MORA only**

(1) {Given partially completed tree diagram - student finds "quick way" to calculate p(outcome)}

(2) {Given tree with probability on each branch - word problem to calculate p(outcome)}

Probability and Statistics: scatter **pre assess: 2**

(1) {Add data values to scatter and state type of correlation}

(2) {Given x-value of extra data item estimate y-value from scatter graph}

Probability and Statistics: stem and leaf **pre assess: 1, 2**

(1) {Complete a stem and leaf diagram, data is TU, grid and key given}

(2) {Given or complete a stem and leaf diagram, data is TU and ...

find the median, mode or range or probability of more/less than ...}

(3) {Given stem and leaf but data key is e.g. 5|6 = 0.56 5.6 or 560 or 5 600 etc

find the median, mode or range or probability of more/less than ...}

Probability and Statistics: Venn **pre assess: 1, 4**

(1) {Given all the elements of A, B and ξ students complete a blank Venn diagram}

(2) {Given completed Venn diagram, students asked to list $A \cup B$, $A \cap B$, A' or B'}

(3) {Given all the elements of $A \cup B, A \cap B$ and A or B students complete Venn diagram}

(4) {Given Venn diagram where C and D are e.g. number of cat and dog owners

write down or describe the meaning of $P(C \cap D)$, $P(C \cup D)$, $P(C')$ OR $P(D')$}