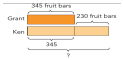
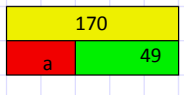
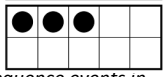
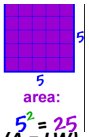
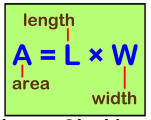
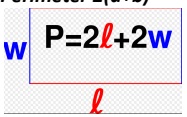
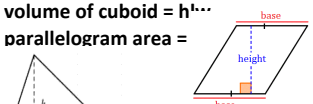
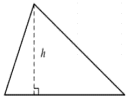
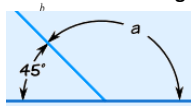
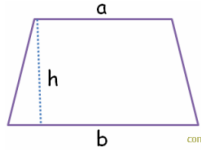
Algebra	Y1	Y2	Y3	Y4	Y5	Y6
language	part:part:whole model	part:part:whole model	RICE, part:part:whole model Bar model, for + and - integer scaling 	RICE Squared times tables eg (2 x 2= 2 ^{2}) perpendicular, perimeter,parallel, area Bar model, for x and ÷	RICE, term, algebra, formula/ formulae, volume,	circumference, diameter, radius, trapezium, derived, variable(in both mathematical and scientific sense), symbol, linear number sequence
Equations	*Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and* ***missing number problems*** *such as* *7 = □ - 9* *Represent and use number bonds and related sutraction facts within 20*	*Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and* ***missing number*** *problems.* *13 = 9 - □* *Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100* *3 + 7= 10* *30 +70 = 100*	Solve problems, *including* ***missing number*** *problems, using number facts, place value* *370 - □ = 300* *Solve problems, more complex addition and subtraction, involving multiplication and division, including integer scaling*	*Solve problems, including* ***missing number*** *problems, involving multiplication and division, including integer scaling, using the Bar Model for both one step and two step problems*	*Use the properties of rectangles to deduce related facts and find* ***missing lengths and angles*** Express missing number problems algebraically *a = 170 - 49*  Enumerate all possibilities of combinations of two variables	Find pairs of numbers that satisfy number sentences involving two unknowns
Formulae and sequences	Subitizing using ten frame, then 1 x 1 – 5 x 5  *Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening*	Subitizing 1 x 1 – 5 x 5 X X X X X X X X X X X X X X X X X X X X *Compare ana sequence intervals of time* *Order and arrange combinations of mathematical objects in patterns*	subitizing to 10 x 10 X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X	use simple formulae ***Area of squares (A=a^2)***  ***rectangles (A = LW)***  ***Perimeter 2(a+b)***  To teach children elegant algebra – (perimeter can be ***2(a + b) or 2l+2w).***	Use simple formulae **volume of cuboid = h'…** **parallelogram area =**   **triangle area = ½ bh**  **Finding angle on a straight line = *a* = 180 – (*b* + *c*).** Pupils draw and label rectangles (incl. squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes. These might be expressed algebraically eg, translating vertex (*a*, *b*) to (*a* – 2, *b* + 3); (*a*, *b*) and (*a* + *d*, *b* + *d*) being opposite vertices of a square of side *d*.	Use simple formulae **Circle area πr ^{2}** **circumference = 2πr (or πd)** **Trapezium $\frac{A=a+b}{2}$ h**  Pupils describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements. Pupils should be introduced to the use of symbols and letters to represent variables and unknowns in mathematical situations that they already understand, Generate and describe linear number sequences
End of year expectations	• To show equations with = in a variety of places in the algorith • Subitizing in 10 frame • Part:part: whole model to show all + and -	• Missing number problems related to + and subtraction • Subitizing 1 x 1 – 5 x 5	• Missing number problems related to x and division • Integer scaling • Algebraic language with letters substituted for numbers • Bar model problem solving for + and -	***Area of squares (A=a^2)*** ***rectangles (A = wl)*** ***Perimeter 2(a + b)*** **Any** letters can be used in algebra BODMAS –3 stage process B, DM, AS	**Volume of cuboid = hlw** **Parallelogram area = bh** base x height **Triangle area = ½ bh** **Straight line angle = *a* = 180 – (*b* + *c*).** Coordinates in all four quadrants	**Circle** **Area πr ^{2}** **Circumference = 2πr (or πd)** **Trapezium $\frac{A=a+b}{2}$ h**