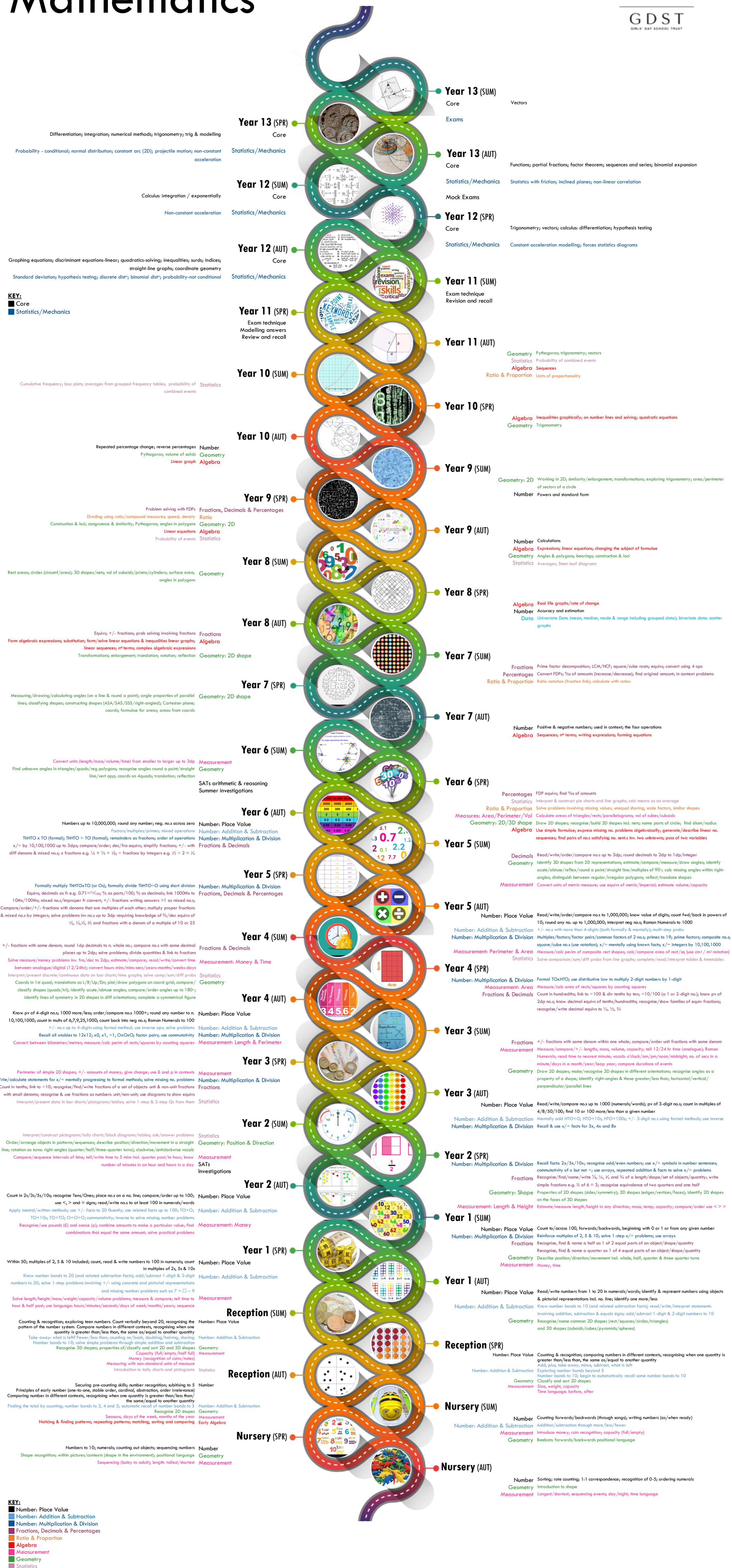


CURRICULUM ROADMAP - Nursery to Year 13

Mathematics



KEY:
 ■ Number: Place Value
 ■ Number: Addition & Subtraction
 ■ Number: Multiplication & Division
 ■ Fractions, Decimals & Percentages
 ■ Ratio & Proportion
 ■ Algebra
 ■ Measurement
 ■ Geometry
 ■ Statistics

Year 13 (SUM)
 Core
 Vectors

Year 13 (SPR)
 Core
 Exams
 Differentiation; integration; numerical methods; trigonometry; trig & modelling

Year 13 (AUT)
 Core
 Functions; partial fractions; factor theorem; sequences and series; binomial expansion
 Statistics/Mechanics
 Probability - conditional; normal distribution; constant arc (2D); projectile motion; non-constant acceleration

Year 12 (SUM)
 Core
 Statistics with friction; inclined planes; non-linear correlation
 Statistics/Mechanics
 Calculus: integration / exponentially
 Non-constant acceleration

Year 12 (SPR)
 Core
 Trigonometry; vectors; calculus: differentiation; hypothesis testing
 Statistics/Mechanics
 Graphing equations; discriminant equations-linear; quadratics-solving; inequalities; surds; indices; straight-line graphs; coordinate geometry
 Constant acceleration modelling; forces statistics diagrams

Year 12 (AUT)
 Core
 Standard deviation; hypothesis testing; discrete dist; binomial dist; probability-not conditional
 Statistics/Mechanics

Year 11 (SUM)
 Exam technique
 Revision and recall

Year 11 (SPR)
 Exam technique
 Modelling answers
 Review and recall

Year 11 (AUT)
 Geometry: Pythagoras; trigonometry; vectors
 Statistics: Probability of combined events
 Algebra: Sequences
 Ratio & Proportion: Units of proportionality

Year 10 (SUM)
 Cumulative frequency; box plots; averages from grouped frequency tables; probability of combined events
 Statistics

Year 10 (SPR)
 Algebra: Inequalities graphically; on number lines and solving; quadratic equations
 Geometry: Trigonometry

Year 10 (AUT)
 Repeated percentage change; reverse percentages
 Pythagoras; volume of solids
 Linear graph
 Number: Geometry
 Algebra

Year 9 (SUM)
 Geometry: 2D: Working in 2D; similarity/enlargement; transformations; exploring trigonometry; area/perimeter of sectors of a circle
 Number: Powers and standard form

Year 9 (SPR)
 Problem solving with FDPs
 Dividing using ratio/compound measures; speed; density
 Construction & loc; congruence & similarity; Pythagoras; angles in polygons
 Linear equations
 Fractions, Decimals & Percentages
 Ratio
 Geometry: 2D
 Algebra
 Statistics

Year 9 (AUT)
 Number: Calculations
 Algebra: Expressions; linear equations; changing the subject of formulae
 Geometry: Angles & polygons; bearings; construction & loc
 Statistics: Averages; Stem leaf diagrams

Year 8 (SUM)
 Rect areas; circles (circumf/area); 3D shapes; nets; vol of cuboids/prisms/cylinders; surface area; angles in polygons
 Geometry

Year 8 (SPR)
 Algebra: Real life graphs/rate of change
 Number: Accuracy and estimation
 Data: Univariate Data (mean, median, mode & range including grouped data); bivariate data; scatter graphs

Year 8 (AUT)
 Equivs +/- fractions; prob solving involving fractions
 Form algebraic expressions; substitution; form/solve linear equations & inequalities linear graphs
 Linear sequences; nth terms; complex algebraic expressions
 Transformations; enlargement; translation; rotation; reflection
 Fractions
 Algebra
 Geometry: 2D shape

Year 7 (SUM)
 Measuring/drawing/calculating angles (on a line & round a point); angle properties of parallel lines; classifying shapes; constructing shapes (ASA/SAS/SSS/right-angled); Cartesian planes; coords; formulae for areas; areas from coords
 Geometry: 2D shape

Year 7 (SPR)
 Fractions: Prime factor decomposition; LCM/HCF; square/cube roots; equivs; convert using 4 ops
 Percentages: Convert FDPs; % of amounts (increase/decrease); find original amount; in context problems
 Ratio & Proportion: Ratio notation (fraction links); calculate with ratios

Year 7 (AUT)
 Number: Positive & negative numbers; used in context; the four operations
 Algebra: Sequences; nth terms; writing expressions; forming equations

Year 6 (SUM)
 Convert units (length/mass/volume/time) from smaller to larger up to 3dp
 Find unknown angles in triangles/quads/regs polygons; recognise angles round a point/straight line/vert opp; coords on 4quads; translation; reflection
 Measurement
 Geometry
 SATs arithmetic & reasoning
 Summer investigations

Year 6 (SPR)
 Numbers up to 10,000,000; round any number; neg. no.s across zero
 Factors/multiples/primes; mixed operations
 TH100 x TO (formal); TH10 = TO (formal); remainders as fractions; order of operations
 x/- by 10,100,1000 up to 3dp; compare/order; dec/fra equivs; simplify fractions; +/- with diff denom & mixed nos; x fractions e.g. $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$; +/- fractions by integers e.g. $\frac{1}{2} + 2 = \frac{5}{2}$
 Number: Place Value
 Number: Addition & Subtraction
 Number: Multiplication & Division
 Fractions & Decimals

Year 6 (AUT)
 Formally multiply TH10xTO (or O); formally divide TH10xTO using short division
 Equivs; decimals as fr e.g. $0.71 = \frac{71}{100}$; % as parts/100; % as decimals; link 1000ths to 10ths/100ths; mixed nos./improper fr convert; +/- fractions writing answers >1 as mixed nos.; Compare/order +/- fractions with denom that are multiples of each other; multiply proper fractions & mixed nos. by integers; solve problems inv. no.s up to 3dp requiring knowledge of %/dec equivs of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{1}{10}$ and fractions with a denom of a multiple of 10 or 25
 Number: Multiplication & Division
 Fractions, Decimals & Percentages

Year 5 (SUM)
 +/- fractions with same denom; round 1dp decimals to n. whole no.; compare nos. with same decimal places up to 2dp; solve problems; divide quantities & link to fractions
 Solve measure/money problems inv. fra./dec to 2dp; estimate/compare; read/write/convert time between analogue/digital (12/24hr); convert hours-mins/mins-secs/years-months/weeks-days
 Interpret/present discrete/continuous data on bar charts/time graphs; solve comp./sum/diff probs
 Coords in 1st quad; translations as L/R/Up/Dn; plot/draw polygons on coord grid; compare/classify shapes (quads/tri); identify acute/obtuse angles; compare/order angles up to 180°; identify lines of symmetry in 2D shapes in diff orientations; complete a symmetrical figure
 Number: Multiplication & Division
 Fractions, Decimals & Percentages

Year 5 (SPR)
 Know pv of 4-digit nos.; 1000 more/less; order/compare nos. 1000+; round any number to n. 10,100,1000; count in mults of 6,7,9,25,1000; count back into neg no.s; Roman Numerals to 100
 +/- no.s up to 4-digits using formal method; use inverse ops; solve problems
 Recall all tables to 12x12; x0, x1, =1, 0x0x0; factor pairs; use commutativity
 Convert between kilometres/metres; measure/calc perim of rect/squares by counting squares
 Number: Place Value
 Number: Addition & Subtraction
 Number: Multiplication & Division
 Measurement: Length & Perimeter

Year 5 (AUT)
 Formal TH10xTO; use distributive law to multiply 2-digit numbers by 1-digit
 Measure/calc area of rect/squares by counting squares
 Count in hundredths; link to =100 & div tenths by ten; =10/100 (a 1 or 2-digit no.); know pv of 2dp nos.; know decimal equivs of tenths/hundredths; recognise/show families of equiv fractions; recognise/write decimal equivs to $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$
 Number: Place Value
 Number: Addition & Subtraction
 Number: Multiplication & Division

Year 4 (SUM)
 +/- fractions with same denom within one whole; compare/order unit fractions with same denom
 Measure/compare +/- lengths; mass, volume, capacity; tell 12/24 hr time (analogue); Roman Numerals; read time to nearest minute; vocab: o'clock/am/pm/noon/midnight; no. of secs in a minute/days in a month/year/leap year; compare durations of events
 Draw 2D shapes; make/recognise 3D shapes in different orientations; recognise angles as a property of a shape; identify right-angles & those greater/less than; horizontal/vertical/perpendicular/parallel lines
 Number: Place Value
 Number: Addition & Subtraction
 Number: Multiplication & Division

Year 4 (SPR)
 Interpret/construct pictograms/tally charts/block diagrams/tables; ask/answer problems
 Order/arrange objects in patterns/sequences; describe position/direction/movement in a straight line; rotation as turns; right-angles (quarter/half/three-quarters turns); clockwise/anticlockwise vocab
 Compare/sequence intervals of time; tell/write time to 5 mins incl. quarter past/to hour; know number of minutes in an hour and hours in a day
 Statistics
 Geometry: Position & Direction
 Measurement: Money & Time

Year 4 (AUT)
 Know pv of 4-digit nos.; 1000 more/less; order/compare nos. 1000+; round any number to n. 10,100,1000; count in mults of 6,7,9,25,1000; count back into neg no.s; Roman Numerals to 100
 +/- no.s up to 4-digits using formal method; use inverse ops; solve problems
 Recall all tables to 12x12; x0, x1, =1, 0x0x0; factor pairs; use commutativity
 Convert between kilometres/metres; measure/calc perim of rect/squares by counting squares
 Number: Place Value
 Number: Addition & Subtraction
 Number: Multiplication & Division
 Measurement: Length & Perimeter

Year 3 (SUM)
 +/- fractions with same denom within one whole; compare/order unit fractions with same denom
 Measure/compare +/- lengths; mass, volume, capacity; tell 12/24 hr time (analogue); Roman Numerals; read time to nearest minute; vocab: o'clock/am/pm/noon/midnight; no. of secs in a minute/days in a month/year/leap year; compare durations of events
 Draw 2D shapes; make/recognise 3D shapes in different orientations; recognise angles as a property of a shape; identify right-angles & those greater/less than; horizontal/vertical/perpendicular/parallel lines
 Number: Place Value
 Number: Addition & Subtraction
 Number: Multiplication & Division

Year 3 (SPR)
 Interpret/present data in bar charts/pictograms/tables; solve 1-step & 2-step Qs from them
 Statistics

Year 3 (AUT)
 Recall facts $2x/5x/10x$; recognise odd/even numbers; use x/= symbols in number sentences; commutativity of x but not =; use arrays; repeated addition & facts to solve +/- problems
 Recognise/find/name/write $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$ and $\frac{1}{10}$ of a length/shape/set of objects/quantity; write simple fractions e.g. $\frac{1}{2}$ of 6 = 3; recognise equivalence of two quarters and one half
 Properties of 2D shapes (sides/symmetry); 3D shapes (edges/vertices/faces); identify 2D shapes on the faces of 3D shapes
 Estimate/measure length/height in any direction; mass; temp; capacity; compare/order use < > =
 Number: Place Value
 Number: Addition & Subtraction
 Number: Multiplication & Division

Year 2 (SUM)
 Count in 2s/3s/5s/10s; recognise Tens/Ones; place no.s on a no. line; compare/order up to 100; use < > = signs; read/write nos. to at least 100 in numerals/words
 Apply mental/written methods; use +/- facts to 20 fluently; use related facts up to 100; TO+O; TO+10s; TO+10s; O+O+O; commutativity; inverse to solve missing number problems
 Recognise/use pounds (£) and pence (p); combine amounts to make a particular value; find combinations that equal the same amount; solve practical problems
 Statistics
 Geometry: Position & Direction
 Measurement: Money

Year 2 (SPR)
 Counting & recognition; exploring teen numbers. Count verbally beyond 20, recognising the pattern of the number system. Compare numbers in different contexts, recognising when one quantity is greater than/less than, the same as/equal to another quantity
 Take away; what is left? Fewer/less than; counting on/back; doubling/halving; sharing
 Number bands to 10; solve simple problems through simple addition and subtraction
 Recognise 3D shapes; properties of classify and sort 2D and 3D shapes
 Capacity (full/empty/half full)
 Money (recognition of coins/notes)
 Measuring with non-standard units of measure
 Introduction to tally charts and pictograms
 Number: Place Value
 Number: Addition & Subtraction
 Geometry
 Measurement
 Statistics

Year 2 (AUT)
 Securing pre-counting skills; number recognition; subitising to 5
 Principles of early number (one-to-one, stable order, cardinal, abstraction, order irrelevance)
 Comparing number in different contexts, recognising when one quantity is greater than/less than/ the same/equal to another quantity
 Finding the total by counting; number bands to 3, 4 and 5; automatic recall of number bands to 5
 Recognise 2D shapes
 Seasons, days of the week, months of the year
 Naming & finding patterns; repeating patterns; matching, sorting and comparing
 Number: Place Value
 Number: Addition & Subtraction
 Geometry
 Measurement
 Early Algebra

Year 1 (SUM)
 Count to/over 100, forwards/backwards, beginning with 0 or 1 from any given number
 Reinforce multiples of 2, 5 & 10; solve 1-step x/= problems; use arrays
 Recognise, find & name a half as 1 of 2 equal parts of an object/shape/quantity
 Recognise, find & name a quarter as 1 of 4 equal parts of an object/shape/quantity
 Describe position/direction/movement incl. whole, half, quarter & three quarter turns
 Money, time
 Number: Place Value
 Number: Addition & Subtraction
 Number: Multiplication & Division

Year 1 (SPR)
 Counting & recognition; comparing numbers in different contexts, recognising when one quantity is greater than/less than, the same as/equal to another quantity
 Add, plus, take away, minus, subtract, what is left
 Exploring number bands beyond 5
 Number bands to 10; begin to automatically recall some number bands to 10
 Classify and sort 2D shapes
 Size, weight, capacity
 Time language: before, after
 Number: Place Value
 Number: Addition & Subtraction
 Measurement
 Geometry

Year 1 (AUT)
 Counting forwards/backwards (through song); writing numbers (as/when ready)
 Addition/subtraction through more/less/fewer
 Introduce money; coin recognition; capacity (full/empty)
 Beebots: forwards/backwards positional language
 Number: Addition & Subtraction
 Measurement
 Geometry

Reception (SUM)
 Counting & recognition; exploring teen numbers. Count verbally beyond 20, recognising the pattern of the number system. Compare numbers in different contexts, recognising when one quantity is greater than/less than, the same as/equal to another quantity
 Take away; what is left? Fewer/less than; counting on/back; doubling/halving; sharing
 Number bands to 10; solve simple problems through simple addition and subtraction
 Recognise 3D shapes; properties of classify and sort 2D and 3D shapes
 Capacity (full/empty/half full)
 Money (recognition of coins/notes)
 Measuring with non-standard units of measure
 Introduction to tally charts and pictograms
 Number: Place Value
 Number: Addition & Subtraction
 Geometry
 Measurement
 Statistics

Reception (SPR)
 Securing pre-counting skills; number recognition; subitising to 5
 Principles of early number (one-to-one, stable order, cardinal, abstraction, order irrelevance)
 Comparing number in different contexts, recognising when one quantity is greater than/less than/ the same/equal to another quantity
 Finding the total by counting; number bands to 3, 4 and 5; automatic recall of number bands to 5
 Recognise 2D shapes
 Seasons, days of the week, months of the year
 Naming & finding patterns; repeating patterns; matching, sorting and comparing
 Number: Place Value
 Number: Addition & Subtraction
 Geometry
 Measurement
 Early Algebra

Reception (AUT)
 Counting & recognition; exploring teen numbers. Count verbally beyond 20, recognising the pattern of the number system. Compare numbers in different contexts, recognising when one quantity is greater than/less than, the same as/equal to another quantity
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 Money (recognition of coins/notes)
 Measuring with non-standard units of measure
 Introduction to tally charts and pictograms
 Number: Place Value
 Number: Addition & Subtraction
 Geometry
 Measurement
 Statistics

Nursery (SUM)
 Counting forwards/backwards (through song); writing numbers (as/when ready)
 Addition/subtraction through more/less/fewer
 Introduce money; coin recognition; capacity (full/empty)
 Beebots: forwards/backwards positional language
 Number: Addition & Subtraction
 Measurement
 Geometry

Nursery (SPR)
 Counting forwards/backwards (through song); writing numbers (as/when ready)
 Addition/subtraction through more/less/fewer
 Introduce money; coin recognition; capacity (full/empty)
 Beebots: forwards/backwards positional language
 Number: Addition & Subtraction
 Measurement
 Geometry

Nursery (AUT)
 Sorting; rote counting; 1:1 correspondence; recognition of 0-5; ordering numerals
 Introduction to shape
 Longest/shortest; sequencing events; day/night; time language
 Number
 Geometry
 Measurement