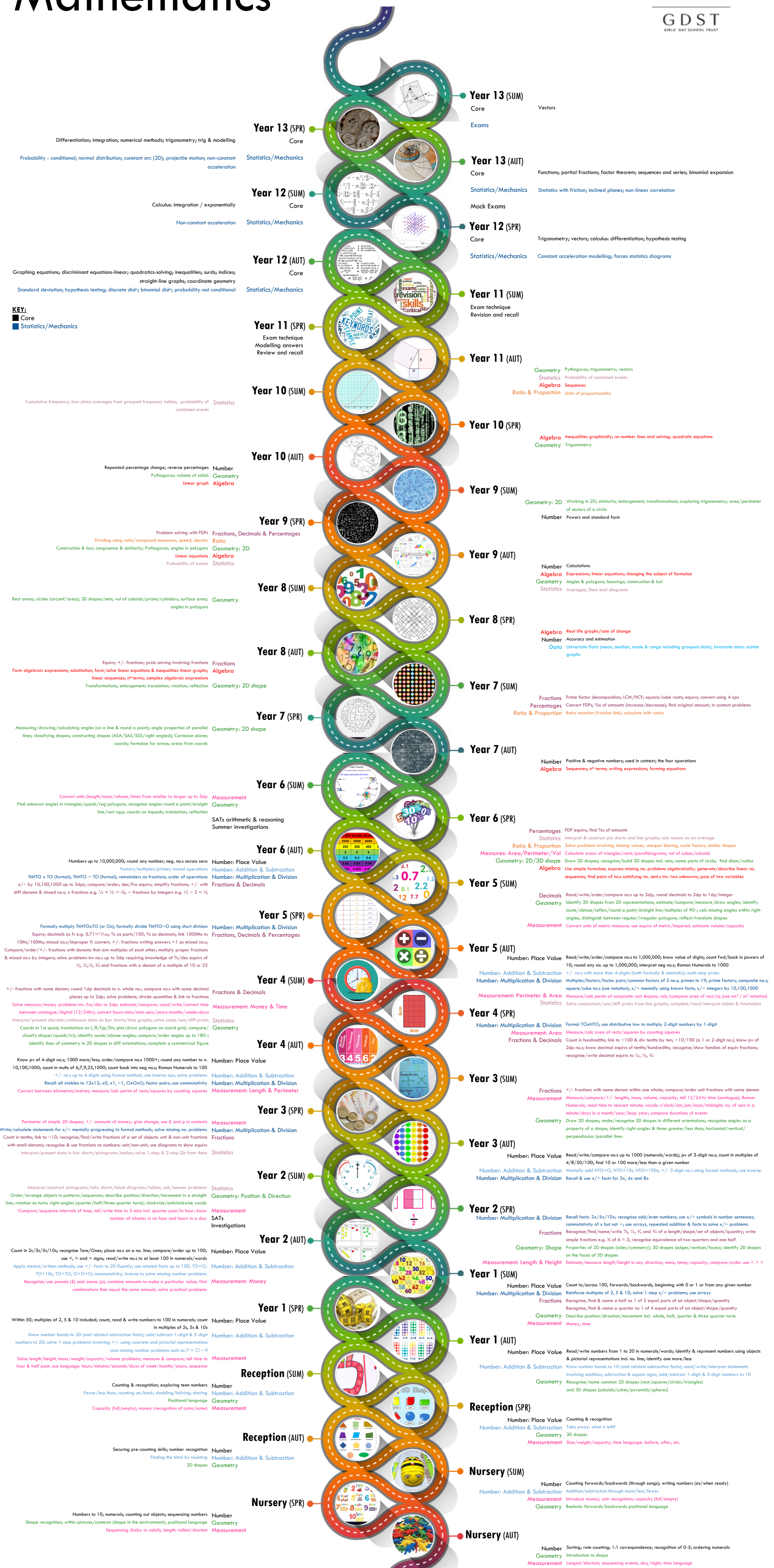


CURRICULUM ROADMAP - Nursery to Year 13

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
 Exams

Year 13 (SPR)
 Core: Differentiation; integration; numerical methods; trigonometry; trig & modelling
 Statistics/Mechanics: Probability - conditional; normal distribution; constant arc (2D); projectile motion; non-constant acceleration

Year 12 (SUM)
 Core: Calculus: integration / exponentially
 Statistics/Mechanics: Non-constant acceleration

Year 12 (AUT)
 Core: Graphing equations, discriminant equations-linear, quadratics-solving; inequalities; surds; indices; straight-line graphs; coordinate geometry
 Statistics/Mechanics: Standard deviation; hypothesis testing; discrete dist; binomial dist; probability-not conditional

Year 11 (SUM)
 Exam technique: Revision and recall

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

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

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

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

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

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

Year 7 (SUM)
 Fractions: Prime factor decomposition; LCM/HCF; square/cube roots; eqivs; convert using 4 ops
 Percentages: Convert FDPs; % of amounts (increase/decrease); find original amount; in context problems
 Ratio & Proportion: Ratio notation (fraction link); 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)
 Measurement: Convert units (length/mass/volume/time) from smaller to larger up to 3dp
 Geometry: Find unknown angles in triangles/quads/regs polygons; recognise angles round a point/straight line/vert opp; coords on 4quads; translation; reflection

Year 6 (SPR)
 SATs arithmetic & reasoning
 Summer investigations

Year 6 (AUT)
 Number: Place Value: Numbers up to 10,000,000; round any number; neg. nos. across zero
 Number: Addition & Subtraction: Factors/multiples/primes; mixed operations
 Number: Multiplication & Division: THTO x TO (formal); THTO = TO (formal); remainders as fractions; order of operations
 Fractions & Decimals: x/- by 10,100,1000 up to 3dp; compare/order; dec/fra eqivs; simplify fractions; +/- with diff denom & mixed nos; x fractions e.g. 1/2 x 1/3 = 1/6 = fractions by integers e.g. 1/2 = 2/4

Year 5 (SUM)
 Number: Multiplication & Division: Formally multiply THTOxTO [or Ox]; formally divide THTO=O using short division
 Fractions, Decimals & Percentages: Eqivs; decimals as fr e.g. 0.71 = 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. nos. up to 3dp requiring knowledge of %/dec eqivs of 1/2, 1/3, 1/4, 2/3 and fractions with a denom of a multiple of 10 or 25

Year 5 (AUT)
 Number: Place Value: Read/write/order/compare nos. to 1,000,000; know value of digits; count fwd/back in powers of 10; round any no. up to 1,000,000; interpret neg nos.; Roman Numerals to 1000
 Number: Addition & Subtraction: +/- nos. with more than 4-digits (both formally & mentally); multi-step probs
 Number: Multiplication & Division: Multiples/factors/factor pairs/common factors of 2 nos.; primes to 19; prime factors; composite no.s
 Measurement: Perimeter & Area: Measure/calc perim of composite rect shapes; calc/compare area of rect/sq (use cm² / m² notation)
 Statistics: Solve comparison/sam/diff probs from line graphs; complete/read/interpret tables & timetables

Year 4 (SUM)
 Fractions & Decimals: +/- 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
 Measurement: Money & Time: Solve measure/money problems inv. fra/dec to 2dp; estimate/compare; read/write/convert time between analogue/digital (12/24hr); convert hours-mins/secs; years-months/weeks-days
 Statistics: Interpret/present discrete/continuous data on bar charts/time graphs; solve comp./sum/diff probs
 Geometry: Coords in 1st quad; translations on 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

Year 4 (AUT)
 Number: Place Value: 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 nos.; Roman Numerals to 100
 Number: Addition & Subtraction: +/- nos. up to 4-digits using formal method; use inverse ops; solve problems
 Number: Multiplication & Division: Recall all tables to 12x12; x0, x1, =1, 0x0x0; factor pairs; use commutativity
 Measurement: Length & Perimeter: Convert between kilometres/metres; measure/calc perim of rect/squares by counting squares

Year 3 (SUM)
 Fractions: +/- fractions with same denom within one whole; compare/order unit fractions with same denom
 Measurement: 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
 Geometry: 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

Year 3 (AUT)
 Number: Place Value: Read/write/compare nos. up to 1000 (numerals/words); pv of 3-digit nos.; count in multiples of 4/8/50/100; find 10 or 100 more/less than a given number
 Number: Addition & Subtraction: Mentally add HTO+O, HTO+10s, HTO+100s; +/- 3-digit nos. using formal methods; use inverse
 Number: Multiplication & Division: Recall & use x/= facts for 3x, 4x, 8x

Year 2 (SUM)
 Statistics: Interpret/construct pictograms/tally charts/block diagrams/tables; ask/answer problems
 Geometry: Position & Direction: Order/arrange objects in patterns/sequences; describe position/direction/movement in a straight line; rotation as turns: right-angles (quarter/half/three-quarter turns); clockwise/anticlockwise vocab
 Measurement: 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

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

Year 1 (SUM)
 Number: Place Value: Within 50; multiples of 2, 5 & 10 included; count, read & write numbers to 100 in numerals; count in multiples of 2s, 5s & 10s
 Number: Addition & Subtraction: Know number bonds to 20 (and related subtraction facts); add/subtract 1-digit & 2-digit numbers to 20; solve 1-step problems involving +/- using concrete and pictorial representations and missing number problems such as 7 + □ = 9
 Measurement: Solve length/height/mass/weight/capacity/volume problems; measure & compare; tell time to hour & half past; use language: hours/minutes/seconds/days of week/months/years; sequence

Year 1 (AUT)
 Number: Place Value: Read/write numbers from 1 to 20 in numerals/words; identify & represent numbers using objects & pictorial representations incl. no. line; identify one more/less
 Number: Addition & Subtraction: Know number bonds to 10 (and related subtraction facts); read/write/interpret statements involving addition, subtraction & equals signs; add/subtract 1-digit & 2-digit numbers to 10
 Geometry: Recognise/name common 2D shapes (rect/squares/circles/triangles) and 3D shapes (cuboids/cubes/pyramids/spheres)

Reception (SUM)
 Number: Counting & recognition; exploring teen numbers
 Number: Fewer/less than; counting on/back; doubling/halving; sharing
 Number: Positional language
 Number: Capacity (full/empty); money (recognition of coins/notes)

Reception (SPR)
 Number: Place Value: Counting & recognition
 Number: Addition & Subtraction: Take away; what is left?
 Number: Multiplication & Division: 3D shapes
 Measurement: Size/weight/capacity; time language: before, after, etc.

Reception (AUT)
 Number: Securing pre-counting skills; number recognition
 Number: Finding the total by counting
 Number: Addition & Subtraction: 2D shapes
 Geometry: 3D shapes

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

Nursery (SPR)
 Number: Numbers to 10; numerals; counting out objects; sequencing numbers
 Number: Shape recognition within pictures/context (shape in the environment); positional language
 Number: Sequencing (baby to adult); length; tallest/shortest
 Measurement: Sequencing (baby to adult); length; tallest/shortest

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