

| Mathematics - Higher | | | | |
|----------------------|---|--|-------------------|---|
| | Content Overview | Small Steps | Resources links | GCSE Pod link |
| 1 | Recurring decimal to fraction | Convert recurring decimals to fractions | Hegarty 53/54 | https://members.gcsepod.com/shared/podcasts/tit/10209/63369 |
| 2 | Quadratic inequalities | Factorise quadratic expressions; factorise and solve inequalities; sketch quadratics | Hegarty 277 | https://members.gcsepod.com/shared/podcasts/tit/10190/62455 |
| 3 | Sine and cosine rule | Apply sine/cosine rule to non-right angled triangles; solve in the context of multi-step problems | Hegarty 532/533 | https://members.gcsepod.com/shared/podcasts/tit/10204/62934 |
| 4 | 3D trigonometry | Recall Pythagoras' theorem and trigonometry ratios (SOHCAHTOA); apply to multi-step problems; apply to 3D shapes | Hegarty 854 - 863 | https://members.gcsepod.com/shared/podcasts/tit/10204/62939 |
| 5 | Simultaneous equations (quadratic and linear) | Use substitution to solve a pair of simultaneous equations | Hegarty 246/259 | https://members.gcsepod.com/shared/podcasts/tit/10190/62451 |
| 6 | Iteration | Use a calculator to support the iterative process; rearrange an equation | | https://members.gcsepod.com/shared/podcasts/tit/10190/62453 |
| 7 | Algebraic fractions | Factorise expressions to simplify algebraic fractions; manipulate algebra to apply the four operations | | https://members.gcsepod.com/shared/podcasts/tit/10187/62439 |
| 8 | Inverse and composite functions | Substitute into functions (expressions); use inverse notation to find inverse functions; substitute a function in to another function | | https://members.gcsepod.com/shared/podcasts/tit/10196/62468 |
| 9 | Direct and inverse proportion | Recognise direct and inverse proportion; solve proportion problems algebraically by finding the value of k | | https://members.gcsepod.com/shared/podcasts/tit/12443/76436 |
| 10 | Vector geometry | Calculate with vectors; describe vector pathways | Hegarty 628 - 636 | |
| 11 | Circle theorems | Know and recall circle theorems; use correct terminology for reasoning; apply circle theorems to multi-step problems | | https://members.gcsepod.com/shared/podcasts/tit/10198/63397 |
| 12 | Gradients of parallel and perpendicular lines | recognise gradient and y-intercept from the form $y=mx + c$; identify parallel and perpendicular gradients; use substitution to find the y-intercept | | https://members.gcsepod.com/shared/podcasts/tit/10192/62869 |
| 13 | Standard form conversions and calculations | convert between standard form and ordinary numbers; use conversion to add/subtract in standard form; recall laws of indices when multiplying/dividing in standard form | | https://members.gcsepod.com/shared/podcasts/tit/10210/62825 |
| 14 | Cumulative frequency | Complete a cumulative frequency table; plot and draw a cumulative frequency graph; find the median and upper/lower quartiles from a CF graph | | https://members.gcsepod.com/shared/podcasts/tit/10221/62762 |
| 15 | Histograms | Draw a histogram; work with frequency density for the y-axis; recall that frequency is found using area of each bar | | https://members.gcsepod.com/shared/podcasts/tit/10221/62764 |

Mathematics - Foundation

| | Content Overview | Small Steps | Resources links | GCSE Pod link |
|----|---|---|---------------------|--|
| 1 | Fraction arithmetic | apply the four operations to fractions; calculate fractions of amounts | | https://members.gcsepod.com/shared/podcasts/title/13626/82144 |
| 2 | Standard form conversions and calculations | convert between standard form and ordinary numbers; use conversion to add/subtract in standard form; recall laws of indices when multiplying/dividing in standard form | | https://members.gcsepod.com/shared/podcasts/title/10210/62825 |
| 3 | Percentages (of an amounts, increase/decrease, change, reverse) | Find percentages of amounts (both calculator and non-calculator methods); write a fraction as a percentage; calculate reverse percentages; use percentage multipliers to work with increase/decrease problems | | https://members.gcsepod.com/shared/podcasts/title/10214/62488 https://members.gcsepod.com/shared/podcasts/title/10214/62489 |
| 4 | Direct proportion | Apply direct proportion to problems like recipes; be able to use multiplicative change to scale up or scale down | | https://members.gcsepod.com/shared/podcasts/title/13491/81101 |
| 5 | Linear simultaneous equations | Solve linear equations using elimination; use equivalent equations to solve using elimination | | https://members.gcsepod.com/shared/podcasts/title/10190/62449 |
| 6 | Straight line graphs | Identify gradient and y-intercept from the form $y=mx+c$; calculate the gradient from a graph and identify the y-intercept; use substitution to find the equation of a straight line | | https://members.gcsepod.com/shared/podcasts/title/10192/62867 |
| 7 | Angles in polygons | Know how to calculate the angle sum of any polygon; recognise that exterior angles always add to 360; interior and exterior angles at to 180 | | https://members.gcsepod.com/shared/podcasts/title/10198/63396 |
| 8 | Volume of 3D shapes | Use and apply the formula for 3D shapes (using the formula sheet to help) | | https://members.gcsepod.com/shared/podcasts/title/10201/63387 |
| 9 | Frequency trees | Complete a frequency tree; interpret a frequency tree | Hegarty 368 and 369 | |
| 10 | Probability trees | Complete a probability tree diagram; calculate probabilities from a tree diagram; apply the AND and OR rules | | https://members.gcsepod.com/shared/podcasts/title/10220/63211 |
| 11 | Calculating averages | Know how to calculate all the averages and the range; calculate the mean from frequency tables | | https://members.gcsepod.com/shared/podcasts/title/10217/62946 |
| 12 | Comparing distributions | Compare data sets by making reference to medians, means or range | | https://members.gcsepod.com/shared/podcasts/title/10217/62946 |
| 13 | Factorising expressions | Identify common factors in numbers and expressions; factorise any expression | | https://members.gcsepod.com/shared/podcasts/title/13626/82141 |
| 14 | Pythagoras | Use and apply Pythagoras' theorem to a right-angled triangle; find the hypotenuse; find the shorter length; solve multi-step problems | | https://members.gcsepod.com/shared/podcasts/title/10204/62926 |
| 15 | Solving equations and inequalities | Use inverse operations (function machines to support) to solve equations and inequalities; expand brackets within equations | | https://members.gcsepod.com/shared/podcasts/title/12382/76234 |