

Title: Sequences, Coordinates and Graphs

Key Knowledge/Prior Learning KS2/3 and Retrieval and Suggested Starters

- Continue a sequence
- Continue a picture pattern
- Substitution
- Solving equations
- Understand coordinates
- Calculate middle of two values
- Rearranging formulae

KS3 National Curriculum – what students will be practicing and key questions

- Missing terms in linear and geometric sequence
- Fibonacci sequence
- Calculate Nth term
- Use Nth term
- Calculate if a number is in the sequence
- Plot coordinates
- Plot missing coordinate to make a shape
- Midpoint of coordinates
- Substitute into equation of a line to plot graphs
- Calculate equation of the line from a graph ($y = mx + c$)
- Calculate equation of the line from coordinates ($y = mx + c$)

Specific Ambitious Knowledge

- Quadratic graphs
- Cubic graphs
- Quadratic sequences
- Equation of parallel lines
- Equation of perpendicular lines
- Plot graphs in for $mx + y = c$

Key Vocabulary/Literacy Opportunities

- Sequence
- Linear
- Geometric
- Term
- Term-to-term rule
- Position-to-term rule
- Nth term
- Y-axis
- X-axis

- Gradient
- Intercept
- Parallel
- Perpendicular

Key Formulae/Knowledge

- $Y=mc + c$
- $M = \text{gradient}$
- Gradient = change in y divided by change in x
- $C = y \text{ intercept}$

Maths in Context (Historical, Real Life and Student Thinking Points)

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Projects/Enrichment/Investigations

- Odds, Evens and More Evens <https://nrich.maths.org/7529>
- Seven squares <https://nrich.maths.org/2290>