# DUDLEY ACADEMIES TRUST

## CURRICULUM INTENT STATEMENT

**Mathematics**

Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.

We believe strongly in teaching for understanding and mastery of the subject. Our high quality mathematics education provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. Learners also learn to apply their mathematical knowledge in Science, Geography, Computing and other subjects.

The Curriculum implementation is sequenced into distinct topics, but learners build on knowledge from Primary phases and connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

Our GCSE map is structured so that Year 9 is an introduction and ensures that learners experience all content that appears on both tiers of entry at GCSE. By Year 10, learners will follow one of two routes on their learning journey, Foundation or Higher. Both the Foundation and Higher route builds on previously mastered topics where we retrieve, affirm and build on the knowledge and understanding as we progress through the curriculum.

As learners enter Year 11 they will follow a personalised scheme of learning that targets gaps in knowledge as identified by the thorough question level analysis (QLA) of each learner's performance in the frequent assessments that take place. This fully prepares them for success in their GCSE examination. Learners also learn to apply their mathematical knowledge in Science, Geography, Computing and other subjects.

| Dreaming big | Rewarding effort | Leading together | Respecting each other and our world | Learning that inspires |
|---|---|---|---|---|
| Learners will be immersed in and ambitious, broad and balanced curriculum for all. It offers learners meaningful real life experiences that reject the idea that a large proportion of people 'just can't do maths', influenced by the Growth Mind-set theories.<br><br>These elements will build a firm foundation in Mathematics that can be used to influence social mobility, providing access to Further and Higher Education, and a heightened sense of self efficacy. | Our curriculum will reward resilient learners with knowledge and skill development and further reinforce high aspirations. Rewards will be based on effort and progress but not limited by prior attainment. An emphasis on hard work, curiosity and perseverance will be celebrated to bolster academic achievements in line with the Trust behaviour policy. | Curriculum content is effectively delivered, in the main, through whole class interactive teaching, focusing on all learners working together on the same lesson content, allowing no learner to be left behind and reducing extraneous cognitive load in the process. We will ensure all learners understand what they are doing well and what they need to do to improve. In addition learners will be encouraged to communicate, justify, argue (and prove) using mathematical vocabulary. Sharing a common goal within a lesson will establish a sense of ownership and foster desirable behaviours that support the developmental of all. | The Mathematics department will raise awareness of the historical aspects of maths and the cultural diversity across number systems that have shaped our world to this day. Verbal and written diversity is encouraged and the views of others are celebrated in line with our focus on diversity. British values are key to creating strong resilient Mathematicians that can appreciate, the diverse thoughts of others. This will impact on social, moral, spiritual and cultural aspects of Academy life and the wider community improving learner confidence. | The 'teaching for mastery' approach allows ALL pupils the best chances of mastering Mathematical concepts. It incorporates international pedagogy from Shanghai and Singapore allowing learners will strive for improvements in knowledge and given the abundant opportunities to acquire a deep, long-term, secure and adaptable understanding of the subject. Learning mathematics requires learners to engage in abstract thinking, bringing together techniques and theories to explore new ideas, deepen understanding and solve problems. Teachers, will break down concepts into small connected and structured steps enabling application to a range of contexts. |

## Year 7

| | SEPTEMBER | | | | | OCTOBER | | | | NOVEMBER | | | | | DECEMBER | | | | JANUARY | | | | FEBRUARY | | | | MARCH | | | | | APRIL | | | | MAY | | | | | JUNE | | | | JULY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 31 August 2020 | 07 September 2020 | 14 September 2020 | 21 September 2020 | 28 September 2020 | 05 October 2020 | 12 October 2020 | 19 October 2020 | 26 October 2020 | 02 November 2020 | 09 November 2020 | 16 November 2020 | 23 November 2020 | 30 November 2020 | 07 December 2020 | 14 December 2020 | 21 December 2020 | 28 December 2020 | 04 January 2021 | 11 January 2021 | 18 January 2021 | 25 January 2021 | 01 February 2021 | 08 February 2021 | 15 February 2021 | 22 February 2021 | 01 March 2021 | 08 March 2021 | 15 March 2021 | 22 March 2021 | 29 March 2021 | 05 April 2021 | 12 April 2021 | 19 April 2021 | 26 April 2021 | 03 May 2021 | 10 May 2021 | 17 May 2021 | 24 May 2021 | 31 May 2021 | 07 June 2021 | 14 June 2021 | 21 June 2021 | 28 June 2021 | 05 July 2021 | 12 July 2021 | 19 July 2021 |
| **Teaching Topic** | Solving equations | | Place value, decimals and using scales | | | Presenting and interpreting data | | Four operations with integers and decimals | | Four operations with integers and decimals | Perimeter | | | Factors multiples and primes | Sequences | | | | Sequences | Understanding fractions | | | Area and perimeter | | | Properties of shapes | Four operations with fractions | | | | | | Four operations with fractions | | | Angle properties | | | | | Parallel lines and angles | | Compare, order fractions, | | Coordinates and transformations | | |

## Year 8

| | SEPTEMBER | | | | | OCTOBER | | | | NOVEMBER | | | | | DECEMBER | | | | JANUARY | | | | FEBRUARY | | | | MARCH | | | | | APRIL | | | | MAY | | | | | JUNE | | | | JULY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 31 August 2020 | 07 September 2020 | 14 September 2020 | 21 September 2020 | 28 September 2020 | 05 October 2020 | 12 October 2020 | 19 October 2020 | 26 October 2020 | 02 November 2020 | 09 November 2020 | 16 November 2020 | 23 November 2020 | 30 November 2020 | 07 December 2020 | 14 December 2020 | 21 December 2020 | 28 December 2020 | 04 January 2021 | 11 January 2021 | 18 January 2021 | 25 January 2021 | 01 February 2021 | 08 February 2021 | 15 February 2021 | 22 February 2021 | 01 March 2021 | 08 March 2021 | 15 March 2021 | 22 March 2021 | 29 March 2021 | 05 April 2021 | 12 April 2021 | 19 April 2021 | 26 April 2021 | 03 May 2021 | 10 May 2021 | 17 May 2021 | 24 May 2021 | 31 May 2021 | 07 June 2021 | 14 June 2021 | 21 June 2021 | 28 June 2021 | 05 July 2021 | 12 July 2021 | 19 July 2021 |
| **Teaching Topic** | Simplifying and manipulating algebra | | Understanding percentages | | Fractions decimals and percentages as operators | | Circles | | | Circles | | Plotting and interpreting graphs | | | Introducing probability | | | | Ratio | | | 3d shape and volume | | | Powers and roots | | Applied graphs | | | | | Order of operations | | | | Constructions | | | | | Proportion | | Further probability | | | Similarity and congruence | | |

## Year 9

| | SEPTEMBER | | | | | OCTOBER | | | | NOVEMBER | | | | | DECEMBER | | | | JANUARY | | | | FEBRUARY | | | | MARCH | | | | | APRIL | | | | MAY | | | | | JUNE | | | | JULY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 31 August 2020 | 07 September 2020 | 14 September 2020 | 21 September 2020 | 28 September 2020 | 05 October 2020 | 12 October 2020 | 19 October 2020 | 26 October 2020 | 02 November 2020 | 09 November 2020 | 16 November 2020 | 23 November 2020 | 30 November 2020 | 07 December 2020 | 14 December 2020 | 21 December 2020 | 28 December 2020 | 04 January 2021 | 11 January 2021 | 18 January 2021 | 25 January 2021 | 01 February 2021 | 08 February 2021 | 15 February 2021 | 22 February 2021 | 01 March 2021 | 08 March 2021 | 15 March 2021 | 22 March 2021 | 29 March 2021 | 05 April 2021 | 12 April 2021 | 19 April 2021 | 26 April 2021 | 03 May 2021 | 10 May 2021 | 17 May 2021 | 24 May 2021 | 31 May 2021 | 07 June 2021 | 14 June 2021 | 21 June 2021 | 28 June 2021 | 05 July 2021 | 12 July 2021 | 19 July 2021 |
| **Teaching Topic** | Geometry | | | | | Data | | | | Data | | | Number | | | | | | Algebra basics | | | | | | | Fractions decimals and percentages | | | | Quadratics | | | | | Quadratics | | | | | Multiplicative reasoning | | | | | | |

## Year 10 A and B

| | SEPTEMBER | | | | | OCTOBER | | | | NOVEMBER | | | | | DECEMBER | | | | JANUARY | | | | FEBRUARY | | | | MARCH | | | | | APRIL | | | | MAY | | | | | JUNE | | | | JULY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 31 August 2020 | 07 September 2020 | 14 September 2020 | 21 September 2020 | 28 September 2020 | 05 October 2020 | 12 October 2020 | 19 October 2020 | 26 October 2020 | 02 November 2020 | 09 November 2020 | 16 November 2020 | 23 November 2020 | 30 November 2020 | 07 December 2020 | 14 December 2020 | 21 December 2020 | 28 December 2020 | 04 January 2021 | 11 January 2021 | 18 January 2021 | 25 January 2021 | 01 February 2021 | 08 February 2021 | 15 February 2021 | 22 February 2021 | 01 March 2021 | 08 March 2021 | 15 March 2021 | 22 March 2021 | 29 March 2021 | 05 April 2021 | 12 April 2021 | 19 April 2021 | 26 April 2021 | 03 May 2021 | 10 May 2021 | 17 May 2021 | 24 May 2021 | 31 May 2021 | 07 June 2021 | 14 June 2021 | 21 June 2021 | 28 June 2021 | 05 July 2021 | 12 July 2021 | 19 July 2021 |
| **Teaching Topic** | Fractions decimals and percentages | | | | | Equations and inequalities | | | | Circle theorems | | | | | Data handling | | | | Rearranging, algebraic fractions and surds | | | | Multiplicative reasoning | | | | Multiplicative reasoning | Equations and graphs | | | | | | Transformations and constructions | | | | Probability | | | | | Probability | | Perimeter and area | | | | |
| **Teaching Topic** | Fractions decimals and percentages | | | | | Multiplicative reasoning | | | | Quadratics | | | | | Data handling | | | | Right angled triangles | | | | Transformations | | | | Multiplicative reasoning | Constructions and loci | | | | | | Constructions and loci | | | | Probability | | | | | Algebra - equations and inequalities | | | | | | |

## YEAR 11

| | SEPTEMBER | | | | | OCTOBER | | | | NOVEMBER | | | | | DECEMBER | | | | JANUARY | | | | FEBRUARY | | | | MARCH | | | | | APRIL | | | | MAY | | | | | JUNE | | | | JULY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 31 August 2020 | 07 September 2020 | 14 September 2020 | 21 September 2020 | 28 September 2020 | 05 October 2020 | 12 October 2020 | 19 October 2020 | 26 October 2020 | 02 November 2020 | 09 November 2020 | 16 November 2020 | 23 November 2020 | 30 November 2020 | 07 December 2020 | 14 December 2020 | 21 December 2020 | 28 December 2020 | 04 January 2021 | 11 January 2021 | 18 January 2021 | 25 January 2021 | 01 February 2021 | 08 February 2021 | 15 February 2021 | 22 February 2021 | 01 March 2021 | 08 March 2021 | 15 March 2021 | 22 March 2021 | 29 March 2021 | 05 April 2021 | 12 April 2021 | 19 April 2021 | 26 April 2021 | 03 May 2021 | 10 May 2021 | 17 May 2021 | 24 May 2021 | 31 May 2021 | 07 June 2021 | 14 June 2021 | 21 June 2021 | 28 June 2021 | 05 July 2021 | 12 July 2021 | 19 July 2021 |
| **YEAR 11 T2/3/4 H3/4** | Estimation<br>Prime factors Rounding and error intervals<br>Manipulating percentages<br>Manipulating fractions<br>Index law<br>Standard form<br>Forming and solving equations<br>Factorising | | | | | | | | | Rearranging equations<br>Simultaneous equations<br>Averages form tables<br>Frequency diagrams<br>Scatter graphs<br>Plotting graphs<br>Compound measures<br>Pythagoras | | | | | | | | Trigonometry<br>Bearings<br>Angles in parallel lines<br>Probability diagrams<br>Construction and loci<br>Area and volume<br>Surface area<br>Congruency and similarity<br>Transformations | | | | | Revision based on Mock analysis | | | | | | Revision based on Mock analysis | | | | | | Revision based on Mock analysis | | | | | | |
| **YEAR 11T 11H2** | HCF/LCM<br><br>Manipulating percentages<br><br>Ratio<br><br>Proportion<br><br>Index laws and standard form<br><br>Nth term (quadratics)<br><br>Rearranging formulae<br><br>Simultaneous equations | | | | | | | | | Expand and factorise algebraic fractions<br>Suing the Quadratic formula<br>Represent and interpret data<br>Cumulative frequency and box plot<br>Circle theorems<br>Surds | | | | | | | | Rationalise the denominator<br>Pythagoras theorem<br>Trigonometry<br>Area of non-right angle triangles<br>Sine and Cosine rule<br>Surface area of compound shapes<br>Transformations<br>Functions | | | | | Revision based on Mock analysis | | | | | | Revision based on Mock analysis | | | | | | Revision based on Mock analysis | | | | | | |
| **YEAR 11H1** | Sampling<br>Cumulative frequency and box plots<br>Quadratic graphs<br>Cubic graphs<br>Simultaneous equations<br>Quadratic inequalities<br>Iteration<br>Circle theorems | | | | | | | | | Tangent to a circle<br>Rationalising the denominator<br>Manipulating algebraic fractions<br>Solving quadratics<br>Rearranging formulae<br>Algebraic proof<br>Functions | | | | | | | | Vectors<br>Reciprocal graphs<br>Exponential growth and decay<br>Transformation of graphs<br>Direct proportion and graphs<br>Inverse proportion | | | | | Revision based on Mock analysis | | | | | | Revision based on Mock analysis | | | | | | Revision based on Mock analysis | | | | | | |