

## **Mathematics Course Summary**

The strands of mathematics that are taught at KS3 are:

Number  
Algebra  
Geometry and Measures  
Statistics  
Probability

Functional maths and using and applying maths is incorporated in the KS3 syllabus.

## **Mathematics Course Levels**

### **Year 7**

**By the end of Year 7 most pupils should be able to:**

Use mixture of mental methods to do calculations

Add, subtract, multiply and divide on paper

Add and subtract decimals to 2 places

Order decimals with up to 3 decimal places

Check an answer makes sense to the question

Know what multiples, factors, prime numbers and square numbers are

Begin to use simple word equations

Substitute whole numbers into expressions

Simplify simple expressions by collecting like terms

Use coordinates in all 4 quadrants

Measure and draw angles to the nearest degree

Use correct units and instruments to read measurements

Find perimeters of shapes

Find areas of simple shapes by counting squares and using formulae

Find averages and the range for a set of data

Represent data using bar charts, line graphs or pie charts

### **Year 8**

**By the end of Year 8 most pupils should be able to:**

Add, subtract, multiply and divide decimals with up to 2 decimal places

Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥

Round a number to a given number of decimal places

Solve simple ratio and proportion problems

Divide an amount in a ratio

Work out fractional and percentage parts of things

Use brackets and BIDMAS accurately

Use correct algebraic notation e.g.  $4a$  for  $4 \times a$ ,  $a^2$  for  $a \times a$

Solve simple equations

Draw straight line graphs

Convert between metric measures

Know and use the formulae for circumference and area of circle

Reflect, rotate and translate a shape

Compare 2 sets of data using mode, median or mean and the range

Interpret graphs and make conclusions

Find probabilities of equally likely events

Understand that the probabilities of all possible outcomes sum to 1

**Year 9**

**By the end of Year 9 most pupils should be able to:**

Use trial and improvement methods

Round to 1 significant figure to obtain estimates

Round to a given number of significant figures

Calculate using ratios

Add and subtract fractions with different denominators (including mixed numbers)

Interpret and compare numbers in standard form  $A \times 10^n$   $1 \leq A < 10$ , where  $n$  is a positive or negative integer or zero

Recognise an arithmetic sequence and find the  $n$ th term

Recognise a geometric sequence and find the next term

Use and interpret algebraic notation

Form and solve linear equations

Use angle facts with parallel and intersecting lines

Know and use Pythagoras' Theorem

Devise instructions to create loci

Enlarge shapes by a positive whole scale factor

Construct pie charts

Draw scatter diagrams for bivariate data

Draw conclusions from scatter diagrams

Find all outcomes from 2 events happening together

Know the total probabilities of mutually exclusive outcomes is 1

## Maths

### **Why is Maths important and relevant to the development of the whole child in the 21<sup>st</sup> Century?**

Mathematics helps you to understand the world around you and helps in pattern recognition. Basic mathematical principles are used everywhere. It is the language of nature and used in all the sciences as well as other subjects.

### **What skills will students develop through studying Maths that will benefit them as a successful learner?**

Through mathematics, children learn to reason, connect ideas and relationships, and to think logically. Mathematics helps to develop creative, curious, critical thinkers who are disciplined, confident and resilient. Group activities within the Maths curriculum develop and promote collaborative decision making.

### **How do we bridge from the Key Stage 2 National Curriculum for Maths as students move from year 6 to 7?**

At primary school, students begin a “transition unit” which they continue to work on when they join Alder Grange. Students are then placed in sets for Maths in year 7 according to their KS2 assessment data. They will then continue to develop their mathematical skills and knowledge at a level commensurate with their ability.

### **How do we assess our students’ performance in Maths as they move across years 7 to 9? How do we track the progress of our students’ learning and skill development across years 7 to 9?**

Students’ progress will be monitored by their teacher through classwork and homework tasks throughout the Key Stage and students are guided through their learning journey at the end of each unit. Termly assessments will take place at Christmas and Easter with an end of year assessment in June.

Progress towards end of year expectations in maths will be reported to parents. We will keep parents informed of any changes which may be implemented during this period.

Grade collections will report if a pupil’s progress shows that they are **‘on track’** for achieving both the **‘expected standard’** at the end of years 7 to 9 and their own **personal GCSE target**. If a pupil continues to make the necessary progress towards the end of year **‘expected standards’** then they will be **‘on track’** to meet the **national expectation at GCSE** which is **grade 5**.