

Mathematics Department

Curriculum Statement



Intent

The aims of the Mathematics Department are to:

- develop, maintain and stimulate students' curiosity, interest and enjoyment in mathematics
- develop students familiarity with appropriate mathematical concepts, principles, methods and vocabulary
- develop students' understanding of mathematics in its widest context and to see how it relates to themselves outside school
- communicate mathematics clearly, concisely and confidently in a variety of contexts
- develop logical and creative thinking in problem solving to instil confidence in using mathematics
- encourage students to develop personal qualities such as politeness, perseverance, resilience, initiative, self confidence and independence
- independently and collaboratively extend their understanding of mathematics
- develop the ability to reflect critically upon their own work and the work of others
- enable all students to have equal access to mathematics and to experience success in their work
- allow students to develop transferable skills and informed opinions about their mathematics and to be able to support them by reasoned argument.

All students will have the opportunity to study mathematics in the sixth form at various levels:

- Applications and Interpretation SL for those students who enjoy seeing mathematics used in real-world contexts and to solve real-world problems
- Analysis and Approaches SL for those students who have good algebraic skills and are likely to need a degree of mathematics for post sixth form study
- Analysis and Approaches HL for those students who have very strong algebraic skills and who enjoy spending time with problems and get pleasure and satisfaction from solving challenging problems. Many of these students are likely to go on to post sixth form study in a mathematically related subject.

Covid Catch up

A number of initiatives have been put in place to allow students to catch up lost learning:

- Reduced mock exam time in Y11, 12 and 13 to allow for more teaching
- Reordering topics in SoW to allow easier topics to be taught during lockdown and the conceptually more challenging ones upon return
- Some topics which were missed out during lockdown have been incorporated into related topics to assist catch up
- IB internal assessments rearranged to be carried out in year 13 under closer supervision
- Year 8 target group attending weekly catch up sessions using Dr Frost website to address weaknesses in key skills with sixth form students assisting them
- Weekly maths clinic which students can attend on a voluntary basis for help with gaps in knowledge

Implementation

a) Content & Skills

The mathematics department considers the teaching of mathematics in Year 7-11 to be one continuous progression of learning new knowledge and skills with the opportunity for consolidation built in. We therefore have a programme of study in which each year builds upon the skills learned in previous years and there is no reference to “starting the GCSE course in year 9 or 10”. Indeed all the mathematics taught at BGS is relevant to GCSE mathematics

The department's schemes of work show the planned sequence and progression of topics and mathematical skills and processes through years 7-11, links to relevant resources and approximate time allocation for each topic [Key Stage 3 SoW](#) , [Key Stage 4 SoW](#) , [IB HL](#), [IB SL](#) [IB mathematical Studies SL](#). Although the SoW are titled KS3 and KS4 for ease of reference, they can be, and should be, considered as one continuous 5 year programme of study.

b) Learning environment

Years 7 to 11 have 2 hrs 55 minutes maths learning per week, (except Year 10 who have 3hrs 20. IB HL students have 4hrs 10 minutes a week and SL students 2hrs 5 minutes

Year 7 and 8 students are taught in form groups of 32. Differentiation takes place in lessons mainly by task. In Years 9 and 10 there are two bands, and there are four maths sets in each band. The top set typically will have approximately 28/29 students with the lowest set only having about 15 students.

No setting takes place in the sixth as groups are defined by the students' option choices.

Homework is an important part of learning and is used to reinforce and practice concepts, skills and knowledge learned in class. It is also used on occasions for students to research in preparation for the next lesson. Year 7 have one 30 minute homework per week, Years 8-11 two homeworks per week and sixth form HL most lessons. Sixth form SL one 30 minute per week. All homework is set via google classrooms and from time to time will also include activities from the Dr Frost website

c) Assessment & Feedback

Assessments for all year groups 7-11 take place half termly, with results recorded centrally. Assessments for the sixth form are taken after each unit of work and results are recorded centrally to monitor progress.

Students receive written and verbal feedback on a regular basis indicating what they need to do improve ([Assessment Policy](#))

d) Monitoring

Student progress is monitored in a variety of ways:

- Results of half termly assessments/ end of unit assessments are recorded in a central spreadsheet
- Report grades are analysed termly to identify student progress

- Learning walks and lesson observations are carried out by the head of department and KS Leaders to monitor quality of teaching and learning
- Work scrutiny is carried out at each department meeting
- Results of individual teaching groups are compared to identify any under or over performing groups

Impact

The mathematics department has consistently been one of the highest performing departments in terms of GCSE results. The last external exam results were Summer 2019. GCSE results were:

- 16.7% grade 9, 40.6% grade 8+, 71.4% grade 7+ 98.4% Grade 5+ 100% grade 4+
- P8 subject score overall 0.39 in Q1. Boys 0.46, girls 0.31 compared to overall P8 score of 0.25 and 0.55 respectively. Gender gap 0.15 compared to school -0.3.
- APS 7.19 in Q1, Residual 0.56 in Q1, Gender Gap 0.19

IB results for summer 2019 show that students are achieving expected outcomes for HL maths when compared to ALIS predictions. (Average VA -0.05). The large number of students who took Maths Studies SL achieved slightly less than expected with a VA of -0.22.

External results for 2020 and 2021 are an improvement on the above.