

Blair Magnet Program: Planning Guide: Junior/Senior Years

MAGNET REQUIREMENTS

Grades 9 & 10

- 1 sem each: physics, chemistry, earth science, biology (dp)
- 3 semesters Research & Experimentation for Problem Solving
- 4 semesters of computer science
- 4 semesters of mathematics

Grade 11

Research Design

MAGNET DIPLOMA

Completion of Grades 9, 10, and Research Design (Grade 11, sem 1)

Completion of 1 year of Calculus (Analysis 1A & B or AP Calculus by recommendation)

Completion of 4.5 credits of Magnet Courses in Grades 11 & 12

(AP Biology, Chemistry, Environmental Science, Physics, Psychology or Economics will also count)

Note: Completion of Senior Research Project is NOT required but is highly recommended

ELECTIVES: GRADES 11 & 12

- Physical Chemistry (sem 1)
- Analytical Chemistry (sem 2)
- Genetics (dp) (sem 2)
- Cell Physiology (sem 1)
- Quantum Mechanics (sem 1)
- Thermodynamics (sem 2)
- Optics (sem 2)
- Marine Biology (sem 1)
- Plate Tectonics/Oceanography (sem 2)
- Astronomy (sem 2)
- Origins of Science (sem 1)
- Can be taken instead of AP Chem, AP Bio, or AP Physics for AP Exam but **REQUIRES** review, often extensive, outside of class.

• After successful completion of Magnet Analysis I A & B, a student can take the AP Calculus BC Exam and the following: Analysis II A & B (MV Calc/Dif Eq), Applied Statistics (sem 1 or 2), Linear Algebra (sem 1), Discrete Mathematics (sem 2)

After successful completion of Analysis II, a student can take Complex Analysis (sem 2)

• After successful completion of Algorithms and Data Structures B (Grade 10, sem 1 or Grade 10, sem 2) students can take Networking (sem 2), Advanced Application Software (sem 1) and Analysis of Algorithms (Grade 10, sem 2 or Grade 11, sem 1). Analysis of Algorithms prepares students to take the AP Computer Science AB Exam and the following electives:

Computer Graphics (sem 1 or 2), Software Design (sem 2), Computer Modeling and Simulation (08-09) or Computational Methods (sem 1 every other year), Artificial Intelligence (sem 2), 3D-Graphics (sem 1). Students **MUST** successfully complete Computer Graphics before they take either Software Design or 3-D Graphics.

• Engineering Problem Solving (currently robotics), Materials Science (sem 2)

Senior Research Project: Research Project A (Grade 11, sem 2) and Research Project B (Grade 12, sem 1)

Seniors only: concurrent enrollment in or successful completion of Analysis II, recommendation of teachers, and Magnet coordinator, single period AP Physics (Mathematical Physics)

MCPs/STATE OF MARYLAND REQUIREMENTS

60(75 hours for the class of 2011) Student Service Learning Hours
Maryland State Assessments in English/Reading (Grade 10) and Algebra/Data Analysis and High School Assessments in Biology, NSL Government
Physical Education - 1 credit
Health Education - .5 credit – must be taken by the end of Grade 10
Fine Arts - 1 credit

GRADE 11

English: AP, Honors, or On Level - 1 credit
Modern World History: AP, Honors, or On Level - 1 credit
Mathematics - 1 credit
Research Design and Research Project A (if doing a senior research project) - .5 or 1 credit

Electives - 4 or 4.5 credits

GRADE 12

English: AP, Honors, or On Level - 1 credit
Mathematics - (4 credits needed for graduation, completion of one year of Calculus for magnet diploma, credit for middle school Algebra and Geometry is automatically counted.)
Research Project B (if completing a senior research project) - .5 credit

Electives - 5.5 or 7 credits

NOTES:

- Two years of Foreign Language in high school required by most 4 year colleges.
- Magnet study hall is available both semesters during periods 4, 5 and 8. Athletes only may schedule an 8th period study hall.
- Testing:
 - 1) The best time for Magnet students to take the SAT II Subject Test in mathematics (Math Level IIC) is when they just completed Precalculus C or Functions B.
 - 2) The SAT II Subject Test in writing is being eliminated because of changes in the SAT. Some colleges are still requiring three SAT II Subject Tests while others only two. Check out the website www.collegeboard.com for more information on specific colleges.
 - 3) All students should take the PSAT in the fall of their junior year to qualify for the National Merit Scholarship competition