



MATHEMATICS AND COMPUTER SCIENCE DEPARTMENT

Our curriculum instills habits of mathematical thinking that will prepare students for using quantitative reasoning and for further inquiry in math and computer science. The department helps students recognize the relationships represented by the language of mathematics and learn essential problem-solving skills such as conjecturing, sense-making, and analyzing strategies and solutions.

TESTIMONIALS:

BB&N Math teachers care about their students' growth and success in math: *the following testimonials were written by students on teacher evaluation forms:*

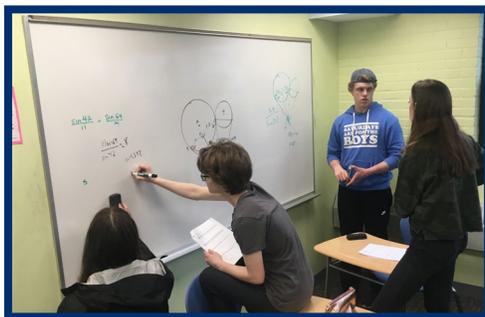
My teacher...

- "...is supportive, fun, and approachable"
- "...makes me feel like an equal in class so I am never afraid to ask questions or seek out extra help."
- "...not only teaches you how to do things, but why it is done."
- "...is always willing to meet with me if I need extra help."
- "...teaches math with full passion."
- "...makes class enjoyable and a learning experience, which as a first-year BB&N student, is new to me."

Preparation for college-level math:

Our graduates are well prepared for college-level math. The following are quotes from recent alums:

- "I was incredibly well prepared for my math classes based on what I learned at BB&N."
- "Although I didn't realize it at the time, [my teacher] was one of the best teachers I have ever had; [my teacher] taught me more about math than anyone else ever has."
- "Computer Science at BB&N was one of my best high school experiences and has made a lasting difference on my life. Because of [my teacher], I majored in computer science in college."



Technology:

BB&N math and computer science teachers strive to use the newest technologies in the most effective ways. We use technology as a tool to facilitate learning and enhance understanding. As a one-to-one school, all our students have both laptops and handheld graphing calculators at the ready to explore new concepts and dig deeper into old ones. BB&N students and teachers make frequent use of applets, GeoGebra, Desmos, and other math software to enhance their students' learning.



OUR CURRICULUM INCLUDES CHALLENGING, INNOVATIVE, STUDENT-CENTERED PROJECTS:

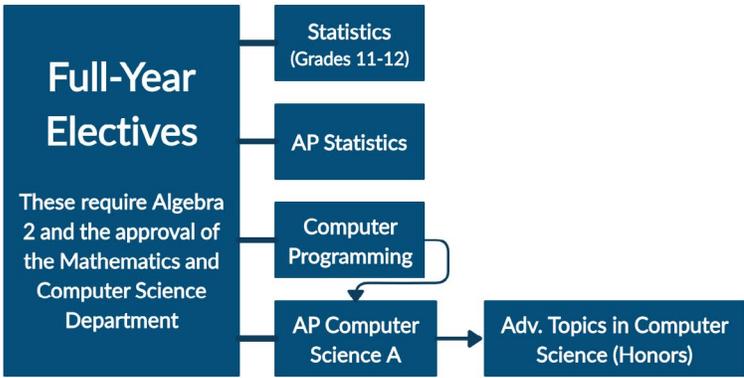
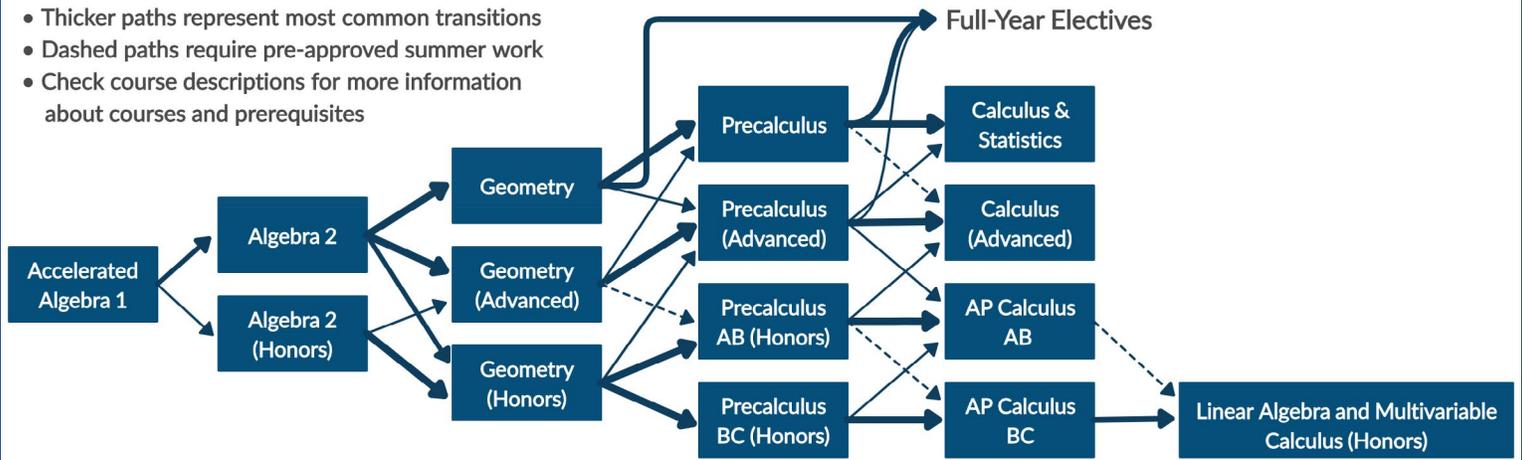
In many BB&N math courses, projects and activities are used to engage and challenge students and to solidify understanding. Some examples include:

- Algebra 2 Transformation Project: Students create a drawing made up of transformations of functions (see image adjacent)
- Drug Testing Project: Students examine the validity of a positive drug test using a rational function
- Getting to Mars: Students use parametric functions to model orbits in an attempt to plot a course to Mars
- Harmonic Motion Lab: Students transform the sine function to model motion over time
- Treasure Hunt: Students use GeoGebra software and coordinate geometry to locate treasure from an incomplete map
- Which Holds More: Students construct cylinders to maximize volume
- Computer Game: Students write a Java program to allow a user to play a game such as Yahtzee or Wheel of Fortune
- Roller Coaster Project: Students create a mathematical model of the track of a roller coaster

For More Information:

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& Math Team Coach
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- Thicker paths represent most common transitions
- Dashed paths require pre-approved summer work
- Check course descriptions for more information about courses and prerequisites



Half-Year Electives

(through Global Online Academy)

Mathematics:

- Data Visualization (Fall) (Math/Science Interdisciplinary)
- Game Theory (Fall and Spring)
- Number Theory (Fall)

Computer Science:

- Computer Science II: Analyzing Data with Python (Spring)
- Computer Science II: Game Design and Development (Spring)
- Cyber Security (Fall)
- iOS App Design (Spring)

The four-year-plan includes various advancement opportunities:

There are many paths through the BB&N math curriculum and numerous advancement opportunities for our students. Movement from standard to honors level courses is common; More than 20% of students in Honors Geometry, Honors Precalculus AB, and AP Calculus AB have moved up from the standard level of math the previous year. Students who take Advanced Algebra 1 in Grade 9 and are ready for more challenge after Algebra 2 can take BB&N's summer Geometry course or take two courses in math in Grade 11 in order to take Calculus in grade 12. At BB&N, placement flexibility is not an exception, it is the rule.

BB&N Math Team:

BB&N is proud to offer a competitive math team. In the past year, the BB&N Math Team participated in the Greater Boston Math League, the Harvard-MIT Math Tournament, and the WPI Invitational. In addition to these off-campus team events, all BB&N students are able to participate in the monthly New England Math League and the annual AMC 10/12 competitions.

In addition, BB&N hosts an annual Integration Bee for its advanced Calculus students.

For more information on the BB&N Math Team, visit: <http://tinyurl.com/knights-math-team>

BB&N Robotics Team:

The BB&N Robotics Team participates in the Vex Robotics Competition. Each year the team is tasked with designing and building a physical robot to play against other teams from around the world. Students learn classroom STEM concepts during this game-based engineering challenge.

SIX YEAR AVERAGE AP MATH EXAM SCORES AT BB&N

70% of AP Math scores were 5

90% of AP math scores were 4 or 5

98% of AP math scores were 3 or higher

4.01

AP CALCULUS AB

4.90

AP CALCULUS BC

4.64

AP COMPUTER SCIENCE A

4.26

AP STATISTICS

All scores are out of 5 and averaged over a six-year period.

