

STEM Academy

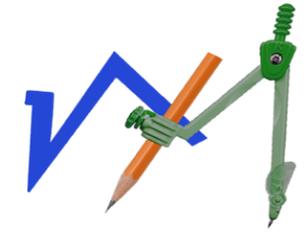


Diploma Eligibility

- * STEM Eligible
- + STEM-HONORS Eligible

BRCOT Courses indicated in *Italics*

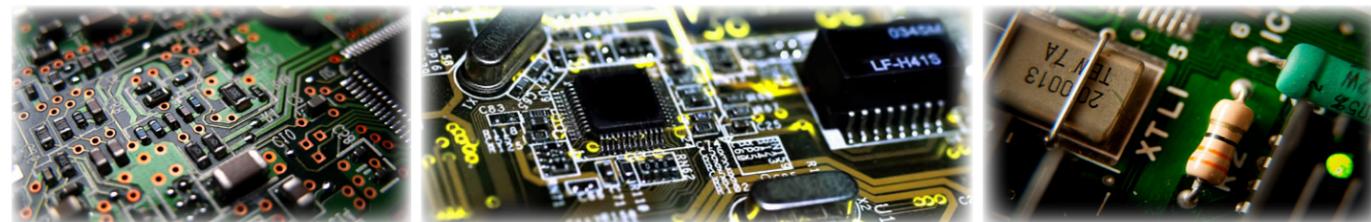
BIDDEFORD SCHOOL DEPARTMENT



SCIENCE • TECHNOLOGY • ENGINEERING • MATHEMATICS ACADEMY

Science	Technology	Engineering	Math
<p>9th Grade Earth & Space * + Physics * +</p> <p>10th Grade Biology * + Chemistry * +</p> <p>11th & 12th Grades CNA <i>Intro to Med Science</i> <i>Medical Assisting</i> Biology * + Chemistry * + Env. Science * + Genetics * Physics * + Science & Survival *</p> <p>AP4ALL + CLEP + Approved Dual Enrollment +</p> <p>Only 12th Grade Genetics +</p>	<p>Open to All Grades <i>Computer Applications</i> <i>Intro to Coding</i> <i>Networking</i> <i>Video Game Design</i> <i>Web Design</i> Advanced Programming Careers in Technology Computer Graphics Intro to Computer Programming Mech Drawing II Robotics for Beginners STEM Academy Robotics</p> <p>11th & 12th Grades Honors STEM Academy Robotics+</p>	<p>Open to All Grades Construction and Set Design <i>Intro to Engineering</i> + (ME, EE, CE) <i>PLTW - Intro to Engineering Design</i> <i>Engineering and Architectural Design</i> Engineering and Design</p> <p>11th & 12th Grades <i>Electrical Engineering</i> <i>PLTW - Engineering Electrical Technology</i> <i>Precision Machining Technology</i> Everyday Engineering</p>	<p>9th Grade Algebra 1 * + Geometry * +</p> <p>10th Grade Algebra 2 * + Geometry * +</p> <p>11th Grade Algebra 2 * + Pre-Calc * + Statistics +</p> <p>12th Grade BRCOT Science Courses Calculus * + College Algebra * + Statistics * +</p> <p>11th & 12th Grades AP4ALL + CLEP + Approved Dual Enrollment + ASPIRE Program at USM +</p>
<p>13 credits total - at least 3 credits must be derived from technology and engineering (minimum 1 credit each area).</p>			

NOTE: This is simply an overview. For specific curriculum requirements to graduate with a STEM or STEM-Honors endorsed diploma, please visit tinyurl.com/BiddSTEM.



Be Distinct or Be Extinct



Biddeford's diverse economy is driven by industrial, professional, public administration and service sectors; it is outgrowing its traditional industrial and manufacturing roots, and undergoing an economic, cultural and arts renaissance. Nearly \$100 million in pledged investments in our downtown promise to remake Biddeford, once more, a "great city rising where the water falls."

In order to meet the needs of our changing economy and the needs of 21st century learners, the Biddeford School Department has created its flagship grades 6-12 STEM Academy.

A project-based, student-centered pathway for motivated students interested in the fields of science, technology, engineering, and mathematics will allow students unparalleled opportunity to engage in STEM coursework, enjoy early enrollment and specialized advising, and earn a STEM-endorsed Diploma. This unique diploma tells employers and post-secondary schools alike that our students are highly-qualified and ready for the unique and rewarding challenges of STEM careers. As our articulation agreements grow each year, our goal is for STEM Academy students to enroll in college with sophomore standing.

Why STEM?



According to Forbes, more than half of the nation's fastest growing jobs require a STEM background. From Biddeford to Portland to Silicon Valley to Hong Kong fields in information technology, medical science, and computer science are growing exponentially. Our schools have always taught math and science--and more recently engineering and technology--but not always in a manner that connects the disciplines to create a meaningful and rigorous pathway for students.

Our STEM Academy is the first of three such Academies that will launch by 2020.

Top Ten STEM Fields

1. Information Technology
2. Computer and Information Services
3. Mathematics
4. Civil Engineering
5. Precision (CNC) Machining and Computer Engineering
6. Computer Programming
7. Environmental Engineering Technology
8. Nuclear Engineering Technology
9. Petroleum Technology
10. Marine Sciences



Biddeford School Department
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It all Starts in Middle School*



Biddeford Middle School has developed a rigorous and unique program emphasizing mathematics and science with the integration of technology and engineering. Courses will be taught by an interdisciplinary multi-grade level team of teachers with approximately 15-18 students from each of the grades. Students will focus on real world problems and have the opportunity to connect with higher education and industry professionals.

In order to be more successful in demanding science-related and technology careers, high school honors, Advanced Placement, and dual/concurrent enrollment college credit courses, we recognized that we need to start preparing students early. An entire team has been created exclusively to STEM. Students who are interested in the *BMSTEM!* Academy must apply. Interested students may obtain an application packet in the BMS main office, or by downloading one from the BMS homepage. For more detailed information, students and families are encouraged to contact Principal Keenan.

* *BMSTEM* program is recommended, but is not a prerequisite for the high school/COT STEM Academy.



Grade	Science	Technology	Engineering	Math
6	<i>BMSTEM!</i> Team-Integrated Math/Science	Intro to Computer Science	"Robotics for Beginners" Lego Robotics I Intro to Engineering - Simple Machines	<i>BMSTEM!</i> Team - Integrated Math/Science
7	<i>BMSTEM!</i> Team-Integrated Math/Science	Computer Science II Integrated Technology Ed. I	Lego Robotics II	<i>BMSTEM!</i> Team - Integrated Math/Science
8	<i>BMSTEM!</i> Team-Integrated Math/Science	Computer Science III Integrated Technology Ed. II	Advance Middle Level Robotics Design and Construction	<i>BMSTEM!</i> Team - Integrated Math/Science

NOTE: Students who successfully completed the *BMSTEM!* program are automatically enrolled in the High School program; others are admitted by application only. STEM Pathway students have enrollment priority at the BRCOT and BHS.

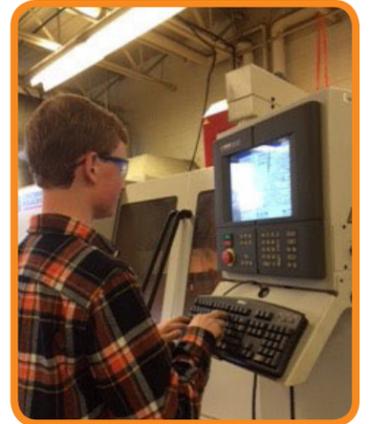
BHS/BRCOT STEM Sequence



The post-secondary landscape for BHS graduates is vastly different than it was even just a few years ago. Not only have college admissions become more competitive and saturated with applicants, but cuts in financial aid and other exigent factors have compelled many schools to raise standards and take a harder look at their applicant pool.

BHS and BRCOT's unique and challenging Diploma Endorsement program has been developed to:

- ▶ capitalize on our existing programs, leverage the talent of our educators, and expand investment in our STEM program;
- ▶ offer students a second-to-none STEM curriculum to help them prepare for career and college;
- ▶ engage and challenge our teaching faculty; and,
- ▶ create a progressive and innovative environment wherein the curriculum is always growing, flexible, and responsive.



“ Students who complete a rigorous program of study in STEM will distinguish themselves with eligibility to earn a specialized diploma upon graduation. Within the application process, colleges and universities will be notified of a student's outstanding achievement, and those who avail themselves of this unique opportunity will be a better prepared and a more attractive applicant. ”

- Principal Sirois

There are two diplomas that students may earn: **STEM** and **STEM-HONORS** (see insert). In order to be eligible to graduate with a **STEM Academy Diploma**, students must:

1. Make application and be accepted into the Academy (see tinyurl.com/BiddSTEM). Eligibility requirements include minimum GPAs (2.5, or 3.0 for STEM-HONORS).
2. Successfully complete 13 credits of STEM coursework, with at least 3 credits derived from technology and engineering (minimum 1 credit each area)
3. Apply for a STEM or STEM-HONORS Diploma by [month] of their senior year; students must have completed the requisite coursework and maintain a cumulative average GPA of 3.0 for the STEM diploma, and 3.5 for the STEM-HONORS diploma.

Frequently Asked Questions

Q: When must I apply for a STEM-Endorsed Diploma?
A: By September 1st of a student's senior year.

Q: Can Independent Studies count toward the requirements?
A: All Independent Studies must be approved by the BRCOT Director and the BHS Principal.

Q: Can internships count toward the requirements?
A: Summer internships approved by the BRCOT Director are eligible for up to 1.0 credits in the "T" and "E" columns; roughly 80 contact hours equals .5 credits.

Q: Will I be able to earn college credits in this Academy?
A: Yes. We are still working with partners to increase the number of credits you could earn, but as of this printing successful students could be eligible for as many as 24 college credits.

Q: Is there any penalty if I change my mind and elect to discontinue my enrollment in the STEM Academy?
A: At the high school, no. Simply let your guidance counselor know. At BMS, students are allowed to transition out of the program at the end of a term.

