

U.S. Department of Education
2014 National Blue Ribbon Schools Program

[X] Public or [] Non-public

For Public Schools only: (Check all that apply) [] Title I [] Charter [X] Magnet [X] Choice

Name of Principal Dr. Linda P. Eno

(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name Biotechnology High School

(As it should appear in the official records)

School Mailing Address 5000 Kozloski Road P.O. Box 5033

(If address is P.O. Box, also include street address.)

City Freehold State NJ Zip Code+4 (9 digits total) 07728-5033

County Monmouth State School Code Number* 310904

Telephone 732-431-7208 Fax 732-431-1395

Web site/URL http://www.bths.mcvsd.org E-mail leno@ctemc.org

Twitter Handle https://twitter.com/biotechnologyhs Facebook Page https://www.facebook.com/biotechnologyhs Google+ _____

YouTube/URL _____ Blog _____ Other Social Media Link _____

I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I-Eligibility Certification), and certify that it is accurate.

Date

(Principal's Signature)

Name of Superintendent*Mr. Timothy McCorkell E-mail: tmccorkell@ctemc.org

(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name Monmouth County Vocational School District Tel. 732-431-7942

I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I-Eligibility Certification), and certify that it is accurate.

Date

(Superintendent's Signature)

Name of School Board President/Chairperson Mr. Clement Sommers

(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I-Eligibility Certification), and certify that it is accurate.

Date

(School Board President's/Chairperson's Signature)

**Non-public Schools: If the information requested is not applicable, write N/A in the space.*

PART I – ELIGIBILITY CERTIFICATION

Include this page in the school’s application as page 2.

The signatures on the first page of this application (cover page) certify that each of the statements below concerning the school’s eligibility and compliance with U.S. Department of Education, Office for Civil Rights (OCR) requirements is true and correct.

1. The school configuration includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school has made its Annual Measurable Objectives (AMOs) or Adequate Yearly Progress (AYP) each year for the past two years and has not been identified by the state as “persistently dangerous” within the last two years.
3. To meet final eligibility, a public school must meet the state’s AMOs or AYP requirements in the 2013-2014 school year and be certified by the state representative. Any status appeals must be resolved at least two weeks before the awards ceremony for the school to receive the award.
4. If the school includes grades 7 or higher, the school must have foreign language as a part of its curriculum.
5. The school has been in existence for five full years, that is, from at least September 2008 and each tested grade must have been part of the school for the past three years.
6. The nominated school has not received the National Blue Ribbon Schools award in the past five years: 2009, 2010, 2011, 2012, or 2013.
7. The nominated school has no history of testing irregularities, nor have charges of irregularities been brought against the school at the time of nomination. The U.S. Department of Education reserves the right to disqualify a school’s application and/or rescind a school’s award if irregularities are later discovered and proven by the state.
8. The nominated school or district is not refusing Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district-wide compliance review.
9. The OCR has not issued a violation letter of findings to the school district concluding that the nominated school or the district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan from the district to remedy the violation.
10. The U.S. Department of Justice does not have a pending suit alleging that the nominated school or the school district as a whole has violated one or more of the civil rights statutes or the Constitution’s equal protection clause.
11. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the school or school district in question; or if there are such findings, the state or district has corrected, or agreed to correct, the findings.

PART II - DEMOGRAPHIC DATA

All data are the most recent year available.

DISTRICT (Question 1 is not applicable to non-public schools)

1. Number of schools in the district (per district designation):
- 0 Elementary schools (includes K-8)
 - 0 Middle/Junior high schools
 - 5 High schools
 - 0 K-12 schools
- 5 TOTAL

SCHOOL (To be completed by all schools)

2. Category that best describes the area where the school is located:
- Urban or large central city
 - Suburban with characteristics typical of an urban area
 - Suburban
 - Small city or town in a rural area
 - Rural
3. 9 Number of years the principal has been in her/his position at this school.
4. Number of students as of October 1 enrolled at each grade level or its equivalent in applying school:

Grade	# of Males	# of Females	Grade Total
PreK	0	0	0
K	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	35	49	84
10	26	54	80
11	39	39	78
12	34	38	72
Total Students	134	180	314

5. Racial/ethnic composition of the school:
- 0 % American Indian or Alaska Native
 - 33 % Asian
 - 2 % Black or African American
 - 3 % Hispanic or Latino
 - 1 % Native Hawaiian or Other Pacific Islander
 - 59 % White
 - 2 % Two or more races
 - 100 % Total**

(Only these seven standard categories should be used to report the racial/ethnic composition of your school. The Final Guidance on Maintaining, Collecting, and Reporting Racial and Ethnic Data to the U.S. Department of Education published in the October 19, 2007 *Federal Register* provides definitions for each of the seven categories.)

6. Student turnover, or mobility rate, during the 2012 - 2013 year: 1%

This rate should be calculated using the grid below. The answer to (6) is the mobility rate.

Steps For Determining Mobility Rate	Answer
(1) Number of students who transferred <i>to</i> the school after October 1, 2012 until the end of the school year	0
(2) Number of students who transferred <i>from</i> the school after October 1, 2012 until the end of the 2012-2013 school year	2
(3) Total of all transferred students [sum of rows (1) and (2)]	2
(4) Total number of students in the school as of October 1	313
(5) Total transferred students in row (3) divided by total students in row (4)	0.006
(6) Amount in row (5) multiplied by 100	1

7. English Language Learners (ELL) in the school: 0 %
0 Total number ELL
 Number of non-English languages represented: 0
 Specify non-English languages:
8. Students eligible for free/reduced-priced meals: 3 %
 Total number students who qualify: 8

If this method is not an accurate estimate of the percentage of students from low-income families, or the school does not participate in the free and reduced-priced school meals program, supply an accurate estimate and explain how the school calculated this estimate.

9. Students receiving special education services: 0 %
0 Total number of students served

Indicate below the number of students with disabilities according to conditions designated in the Individuals with Disabilities Education Act. Do not add additional categories.

- | | |
|--------------------------------|--|
| <u>0</u> Autism | <u>0</u> Orthopedic Impairment |
| <u>0</u> Deafness | <u>0</u> Other Health Impaired |
| <u>0</u> Deaf-Blindness | <u>0</u> Specific Learning Disability |
| <u>0</u> Emotional Disturbance | <u>0</u> Speech or Language Impairment |
| <u>1</u> Hearing Impairment | <u>0</u> Traumatic Brain Injury |
| <u>0</u> Mental Retardation | <u>0</u> Visual Impairment Including Blindness |
| <u>0</u> Multiple Disabilities | <u>0</u> Developmentally Delayed |

10. Use Full-Time Equivalents (FTEs), rounded to nearest whole numeral, to indicate the number of personnel in each of the categories below:

	Number of Staff
Administrators	1
Classroom teachers	24
Resource teachers/specialists e.g., reading, math, science, special education, enrichment, technology, art, music, physical education, etc.	0
Paraprofessionals	0
Student support personnel e.g., guidance counselors, behavior interventionists, mental/physical health service providers, psychologists, family engagement liaisons, career/college attainment coaches, etc.	3

11. Average student-classroom teacher ratio, that is, the number of students in the school divided by the FTE of classroom teachers, e.g., 22:1 13:1

12. Show daily student attendance rates. Only high schools need to supply yearly graduation rates.

Required Information	2012-2013	2011-2012	2010-2011	2009-2010	2008-2009
Daily student attendance	98%	98%	98%	98%	98%
High school graduation rate	100%	100%	100%	100%	100%

13. **For schools ending in grade 12 (high schools)**

Show percentages to indicate the post-secondary status of students who graduated in Spring 2013

Post-Secondary Status	
Graduating class size	81
Enrolled in a 4-year college or university	100%
Enrolled in a community college	0%
Enrolled in career/technical training program	0%
Found employment	0%
Joined the military or other public service	0%
Other	0%

14. Indicate whether your school has previously received a National Blue Ribbon Schools award.

Yes_ No X

If yes, select the year in which your school received the award.

PART III – SUMMARY

"Biotechnology High School, an International Baccalaureate (IB) World School, integrates life science, technology, and engineering into a rigorous curriculum that inspires students toward open-minded participation in the global community and prepares them for higher education and leadership in an increasingly demanding workplace, through scholarly research, original investigations, and interactive partnerships." The school's original mission statement, created in 2005, underwent its most recent revision this fall. This revision emanated from a student team called the Culture of Excellence Committee. The changes were endorsed by stakeholder groups including students, parents, faculty and advisory board members and reflected an increasingly important role for technology and engineering in the curriculum.

Biotechnology High School (BTHS), 1 of the 5 Career Academies administrated by the Monmouth County Vocational School District, is a competitive admission, public high school that serves Monmouth County residents in grades 9-12. Students are selected on the basis of a portfolio score, comprised of 7th grade final grades, 8th grade first marking period grades, and an admission test. The first round in the selection process admits the highest scoring eligible applicant from each of the 52 sending districts. Subsequent offers of admission are based strictly on portfolio scores. Applicants must earn a score of 75 to be eligible.

BTHS features the rigorous International Baccalaureate Diploma Program (100% of students are International Baccalaureate (IB) Diploma Candidates) alongside a career themed curriculum. As IB Diploma Candidates, students are required to take seven IB courses, write a 4,000 word senior thesis, and complete 150 Creativity, Action, and Service hours. Thematic classes focus on the field of biotechnology and include electives in neurobiology, anatomy and physiology, developmental biology, biomedical engineering, and biobusiness. Graduates of BTHS have completed 160 credit hours of instruction, including a minimum of 45 credit hours in laboratory sciences and mandatory coursework in leadership and ethics. In addition, each senior completes a science-based senior internship.

Fifteen percent of faculty members hold doctoral degrees, and all faculty are either master's prepared or are engaged in a master's program. Two teachers earned their National Board Certification while at BTHS and one remains on staff. In 2013, US News and World Report ranked Biotechnology High School as the 8th best high school in the nation and the best high school in the state of New Jersey. Although the school has been in operation only 8 years, deep traditions already exist, many built around our commitment to shared leadership, with Advisor Groups serving as a good example. Every freshman has a sophomore buddy and these pairs are part of a larger program called Advisor Groups, which aims to build bonds across the grades, instill culture, and assist students with the transition to high school. Weekly meetings, led by students and supported by faculty, provide peer to peer instruction, leadership opportunities, role modeling and bonding time. Another example is a group of four recruitment events known as Information Sessions. Staffed by parents, faculty, and alumni, upperclassmen train younger students in guiding tours, serving on panels, and presenting aspects of the program. Other annual events such as Freshman Orientation, Senior High Ropes Trip, Junior Canoe Trip, Girls' Night Out, and Spirit Games, characterize the thoughtful planning behind this close knit community.

Some major accomplishments of the 2012-2013 school year include: 93% of the Class of 2013 earned their IB Diploma, Ranked as #1 in U.S. News & World Report's "Best High Schools in New Jersey", Ranked as #8 in U.S. News & World Report's "Best High Schools in America", Home to 2013 Monmouth County Teacher of the Year, 98% of freshmen achieved Advanced Proficient on the Biology End of Course Assessment, 40% of the graduating class are National Merit Commended Scholars (finalists to be announced March, 2014), Jersey Shore Science Fair – 38 Award Winners (6 first place), Delaware Valley Science Fair – 13 Award Winners (3 first place), American Museum of Natural History Young Naturalist Awards (2 semifinalists), and FFA – 9 National Award Winners (3 first place).

The district's superintendent, Mr. Tim McCorkell once said that the difference between a good school and a great school is what people are talking about when they think no one is listening. Biotechnology's arrival in the nation's top 10, in just 8 years, can be directly attributed to the caliber of conversation taking place among the school's stakeholders. At the same time, the school's faculty is acutely aware of the

responsibilities that come with success. All members of the team engage in professional activities to give back to the profession. Hosting other educational programs, presenting at conferences and workshops, attending professional gatherings, blogging, tweeting and increasingly, publishing, all serve as channels for sharing replicable best practices.

PART IV – INDICATORS OF ACADEMIC SUCCESS

1. Assessment Results:

A. The Biotechnology High School community expects our students to earn the highest level of achievement (Advanced Proficient) on all state administered assessments. The students at Biotechnology High School take two state administered assessments: the End of Course Biology Exam (EOC Biology, grade 9) and the High School Proficiency Assessment (HSPA, grade 11). Last year, 99% of BTHS students earned an Advanced Proficient Score on the 11th Grade HSPA Math Assessment and 97% of BTHS students earned an Advanced Proficient Score on the Language Arts Assessment; the remainder were Proficient on both tests. On the EOC Biology Assessment, 97% of students scored Advanced Proficient and the remainder were Proficient. Each year students score above the state and national average on standardized assessments, including the PSAT, SAT, and ACT. Most students' scores fall within the top 10th percentile. For struggling students, the school aims to have all students above 500 in each of the three PSAT/SAT categories.

Two years ago, the Monmouth County Vocational School District began moving towards common midterm and final exams across the five Career Academies for courses with a common curriculum. These exams are collaboratively designed by teachers from the five schools. Student data is compared and discussed. Board policy defines proficiency as a 77%, but for most students, faculty expect a performance level of 85% or above. When surveyed, the vast majority of students stated that they considered either an 85% or 92% (an A) to be a good measure of academic success, although a small portion of students considered either a 96% or a 77% to be the best measure of academic success.

B. Student data on State Administered Assessments has improved over the years for which we have data. In the 2008/09 and 2009/10 school years, 95% of students were Advanced Proficient. In the 2012/13 school year, 99% of students were Advanced Proficient. The baseline on Language Arts was lower, with 79% and 74% of students being Advanced Proficient in the 2008/9 and 2009/10 school years. In the 2012/13 school year, 97% of students were Advanced Proficient. The only statistically significant subgroup is the Asian Racial/Ethnic Group. The results from this subgroup began below the mean in Language Arts, but subsequently reached 100% Advanced Proficient in 2012/13 in both Math and Language Arts. The growth can be attributed to several factors. Faculty have been diligent in strengthening the vertical and horizontal alignment of skills and standards and ensuring that instruction is aligned with assessment. More systematic supports have been put in place for struggling students, including academic support at lunch time and after school, and a peer tutoring system that coordinates with teacher extra help. Additionally, as the reputation of the school has grown, the student pool has become more academically elite, contributing to the rise in scores.

Student data from International Baccalaureate (IB) coursework is normalized internationally and represents all BTHS graduates. BTHS composite data from the IB Programme demonstrates growth in student achievement in nearly all disciplines from Year 1 to Year 4 of the Programme. This is especially true for the Sciences and Mathematics. This growth can be attributed to the increased commitment to STEM (science, technology, engineering and mathematics) in the student population and increased understanding of IB learning objectives and assessments among the faculty. Growth is also observed in language courses, demonstrating the strength of that portion of our Programme despite having a population of students whose interests are more aligned with STEM fields. History scores started above the international mean and have remained there from Year 1 to year 4 of the Programme. By the 2012 examination session, BTHS scores were above, and occasionally substantially surpassed, world averages for nearly all subjects with the exception of Chemistry (BTHS Average = 4.05, World Average = 4.58) (The IB Diploma Programme Statistical Bulletin, May 2012). Chemistry has been an area of focus over the last two years and the school community is excited to see outcomes for the current examination session.

There is no achievement gap of 10 or more percentage points between the test scores of all students and the test scores of any subgroup. Nevertheless, BTHS has a commitment to helping every student perform at a high level. The Pupil Improvement Plan (PIP) is BTHS's formal process for reversing a negative trend in a student's performance. When a student is unable to maintain a grade of C, a PIP is put into place. This

immediately notifies the student, guidance, administration, and parents that there is a concern regarding the student's learning. Peer tutoring, mandatory extra help, preferential seating, increased communication with parents, attendance at academic support, more frequent meetings with guidance, or other corrective measures are put in place until the negative trend is reversed.

2. Using Assessment Results:

Assessment data is organized and maintained, starting from the time students are admitted. The initial data set consists of home town, ethnicity, languages spoken at home, free & reduced lunch status, admission test scores and placement test scores. PSAT and Biology End of Course exam scores are added during the 9th grade year. During the 10th and 11th grade years, new PSAT scores are added. During 12th grade, HSPA scores from 11th grade are added. Teachers, counselors, and the principal are able to refer to this data when setting targets for student growth objectives and gauging student progress.

In September of 2013, for the first time in school history, new students were admitted into the 10th grade. One of these students scored a 143 on the October PSAT Critical Reading section, which is one of the lowest scores ever attained by a BTHS 10th grader. The BTHS community is working to implement new software (Study Island) specifically designed to deliver standards based instruction and test preparation for this student and others that have been identified as having specific areas in need of improvement. This student has also been placed into both lunch-time and after-school peer tutoring and teacher led extra help.

As a competitive admission high school, Advanced Proficiency on State Assessments is not always a rigorous growth goal for this program. Hence, BTHS uses IB scores as a key measure of student and school performance. Every student takes externally validated exams in six core subjects. Data becomes available in July and teachers make use of this data to modify instruction. An example of this involves the BTHS Higher Level Physics scores from July 2013. The instructor identified one topic (Nuclear Physics) for which students outperformed the world average by 30% and analyzed what made the instruction of this topic different. It was determined that an individualized project for which students had to give an oral report was the main unique attribute of this topic. This year, the instructor chose for students to do a similar project in a topic in which data showed that students under-performed by 5% compared to the world average.

Students and parents are given electronic access to teacher gradebooks. All teachers, counselors, and the principal maintain weblogs announcing key dates and assignments. Weblogs are highlighted on the school website and at Back to School Night. News is also announced on the BTHS website as well as Twitter, Facebook, and Flickr.

Under New Jersey's new teacher evaluation formula, 15% of a teacher's evaluation comes from Student Growth Objectives (SGOs). One-hundred percent of students in the related course have target growth goals. Teachers are responsible for collecting pre-assessment and post-assessment data and calculating how many students met their growth objective. Teachers at Biotechnology High School are adapting well to the SGO model due to practice in collecting and analyzing student data.

3. Sharing Lessons Learned:

Biotechnology High School acknowledges that a competitive admission policy, an engaged parent cohort, and reliable fiscal support have mitigated some common educational challenges. Nevertheless, aspects of our success are attributable to good programmatic planning and instructional practices that are replicable. The leadership and faculty of the school make these strategies available to diverse stakeholders in a variety of ways. Biotechnology High School serves as a frequent host to school districts from around the world looking to improve their programming. These visitations typically include a meeting with administration, classroom visits, and meetings with faculty and students. The goal is always to extract and share the replicable elements of the programming, including but not limited to curriculum, vertical and horizontal articulation, academic supports, hiring practices, and strategies for building culture.

Delegations from the following organizations visited BTHS to observe best practices in STEM education: Freehold Regional Superintendent, Cherry Hill SD, New Schools Project (North Carolina), IEEEC, Henry

Hudson HS, Delegation from India, Delegation from Korea, Delegation from New Taipei City, and Benilde-St. Margaret's: St. Louis MN.

In addition to hosting visitors, BTHS faculty and administration offer professional development to a variety of audiences and leverage professional affiliations as opportunities for formal and informal professional exchanges. Recent examples include presentations at NJ Principals' and Supervisors Association, The College of NJ, NJEA Annual Convention, NJDOE, and MCVSD Curriculum Committees. Some topics included: Developing Goals for School Leaders, Career Choices Round Table For Students, Using Technology to Improve Literacy Skills, and Science in the Common Core Curriculum.

4. Engaging Families and Community:

The school has used two primary vehicles for working with families and community members to promote student success: the Parent Student Faculty Association (PSFA) and the Advisory Board. The PSFA meets monthly to coordinate the support they provide, get updates, ask questions and build relationships that support their students and the program. The principal and a student government representative attend each meeting and provide updates on events of the past month and plans for the future. The guidance counselors also support the parents by offering several workshops throughout the school year, including: (1) "MOST: Multicultural Outreach Support Team" for multicultural families; (2) "Rising Junior Parent Night" focused on the transition to the International Baccalaureate Program; and (3) "Rising Senior Parent Night" focused on college planning.

Examples of the kinds of programmatic support the PSFA provides are drivers' education classes, test preparation courses, teacher grants and hospitality at events ranging from graduation to recruitment and orientation. The recently enhanced collaboration among the parent organizations of the 5 sister schools has resulted in many positive ventures, including joint sponsorship of a speaker on cyber safety. The BTHS parent organization also initiated the Buddy Families program, designed to support incoming families and to engage a more diverse group of parents in the organization. The results have been gratifying, increasing membership and attendance and diversifying leadership.

The school's Advisory Board has been its most successful tool in maintaining community relations. Formed 18 months in advance of the school's opening, it is comprised of partners from industry, higher education and community based organizations. The group meets semiannually to discuss industry changes, curriculum, student success, and areas for growth. As a direct outgrowth of this group, Biotechnology High School will be implementing a computer science course for the first time this fall. The group was instrumental in both the design and the funding of the school's newly constructed tissue culture lab. They serve as mentors at internship sites for seniors, host theme related field trips, come to school as guest speakers, and provide opportunities for program recognition. Most recently, 5 partners came on short notice to be present for a visit from the state's Lt. Governor.

PART V – CURRICULUM AND INSTRUCTION

1. Curriculum:

The heart of the Biotechnology High School curriculum is geared towards implementation of state standards as well as preparation for, and delivery of, the International Baccalaureate (IB) program in grades 11 and 12. All curricula are aligned to NJ State Standards, Common Core Standards, and 21st Century Life and Career Readiness Skills. Core academics are taught at an honors level for grades 9 and 10, and aligned with the advanced coursework of the IB program. All BTHS students become IB Diploma Candidates. As IB Diploma Candidates, students are required to take six IB courses (three higher level and three standard level), write a 4,000 word senior thesis, and complete 150 Creativity, Action, and Service (CAS) hours. To earn the IB diploma, students need to achieve superior scores on externally assessed exams, projects, and essays.

Students are enrolled in four years of English Language Arts courses, including a two year higher level IB course. There is a heavy focus on grammar and textual analysis throughout the courses. Students are prepared for both IB exams and state standardized tests that focus on critical reading and writing. Students are also enrolled in four years of mathematics courses, including a two year standard level IB course. Some students enter the school with advanced mathematical coursework, thus completing the requisite coursework sooner. These students enroll in an AP Calculus BC class during grade 12.

Sciences at BTHS are unique since the curriculum includes eight mandatory laboratory science classes. In grades 9 and 10, students complete introductory courses in biology, chemistry, physics, and biotechnology. With two science courses every year, students are able to complete both a higher level IB Biology course and either higher level IB Chemistry or IB Physics. A research course and biotechnology skills course are part of the thematic studies at BTHS that help to expand its science offerings and requirements. Additionally, BTHS offers many unique electives that focus on career readiness within the STEM pathway and biotechnology school theme. This area will be discussed in greater detail within the “Additional Curriculum Area” of the application.

Students are enrolled in three years of social studies courses, including an intensive one year standard level IB course. Grades 9 and 10 cover World History and US I. Grade 10 students are also required to take a Bioethics course. Following the IB History course, students are enrolled in a Theory of Knowledge (TOK) course, which is necessary for completion of the IB program.

The only world language offered at BTHS is Spanish. Students must complete a course sequence that concludes with an intensive one year standard level IB course (the equivalent of Spanish IV). Students are tested upon acceptance into BTHS to determine their level of proficiency. Students may opt to enroll in AP Spanish during grade 12 if they have already completed the IB Spanish SL course.

BTHS employs an Option 2 curriculum to meet the Visual and Performing Arts requirements. A board approved curriculum meets NJ state standard requirements without the seat time. Some of the tasks are completed during school time, through experiences such as attending theatrical performances and writing a screenplay. Students also have the obligation to independently pursue some aspects of the requirements. There are co-curricular opportunities to help students meet these independent requirements, including events held by the Art Club, Drama Club, and Music Club.

Students at BTHS are enrolled in physical education (PE)/health courses during grades 9 and 10, which meet or exceed New Jersey’s 3-credit requirement. During grades 11 and 12, some of the PE requirements are fulfilled as part of the core curriculum. The remainder are met through documentation of action hours, a part of a larger IB requirement for 150 Creativity, Action and Service hours.

Technology is infused within all courses at BTHS. During 9th grade, students are enrolled in a Digital Literacy course. This course introduces them to the technologies available to and used by all students who attend BTHS. This is discussed in further detail in the “Instructional Methods” area of the application.

2. Reading/English:

Biotechnology High School's English Language Arts (ELA) curriculum combines the ELA Common Core Standards with the International Baccalaureate Higher Level Language and Literature curriculum. These curricula are well aligned with the school's mission. With an increased focus on informational text as well as an increasingly relevant interpretation of text, the use of these curricula supports a vertically aligned language arts curriculum that allows students to read closely, synthesize information, make arguments that are supported by textual evidence, and state conclusions that derive logically from the evidence. These are skills that are essential to the school's STEM theme. Because students come from districts all over Monmouth County, they come with different levels of preparation. Admission test results, reading scores from the PSAT (taken in grades 9-11), and classroom performance, provide faculty with a triangulated inventory of students' language arts foundation early in their academic career.

Students with academic challenges are brought to the attention of the Intervention and Referral Services team, through the guidance counselors. Students that are identified as reading below expectations (defined as below a 500 on the Critical Reading PSAT in grade 9) are targeted for intervention. Interventions include a meeting with parents, assignment to academic support (lunch time and or after school), mandatory attendance at extra help sessions, and working with a peer tutor for content areas that are being impacted by below average reading skills. Interventions are communicated and reinforced at monthly grade-level meetings. This year the school has seen a rise in admitted students reading below grade level. The school is in the process of getting a site license for Study Island, an online tool designed for the diagnosis and remediation of academic deficits. This will be used to strengthen skills during the school year and to prevent summer loss.

The school also has many students gifted in language arts. These students are supported by the free lending libraries found in English classrooms and in the downstairs lobby. They have access to an open media center at lunch hour and to the Monmouth University library through an articulation agreement. BTHS subscribes to the NY Times, offering an additional source of differentiated text for top students. ELA teachers also utilize a wide range of tools so students have choice in how to express themselves and access to a real world audience (e.g. blogging, tweeting, and writing contests).

3. Mathematics:

Math at Biotechnology High School, is closely tied to the biotechnology research theme, creating a strong STEM core. The math sequence at the school starts with Geometry or Algebra II. Algebra I was eliminated due to the science scope and sequence that includes chemistry in freshman year. A strong foundation in Algebra is essential to success in Chemistry and advance preparation in Geometry promotes success in sophomore Physics. Admitted students take a math placement test in late May. A remedial summer course is offered for students with deficits and a complete course is offered for students who have not taken yet Algebra I. The courses are free of charge and help reduce discrimination of students whose middle schools do not have advanced math offerings. Students that advanced through geometry in middle school can test into Algebra II.

After completing Algebra II students take IB Math SL I and II. These course are a blend of pre-calculus, calculus, and statistics. For students that finish IB Math in their junior year, senior math is AP Calculus BC. Alumni in engineering majors, as well as higher education partners, acknowledge the importance of a pure calculus course for success at the university level. Students that are highly motivated toward an engineering major and not already on track to take AP Calculus BC, are encouraged to course ahead by taking an Algebra II course over the summer. For students that struggle with math, there is extra help almost daily, along with a peer tutoring system that many students use.

Math teachers at Biotechnology High School work hard to provide a student-centered learning environment. Students can be seen pairing and sharing results, consulting each other as they work through problem sets, and putting their own work on the board for scrutiny by peers. It is the experience of faculty that when students collaborate they build trust, feel more empowered to ask questions, and learn the material more deeply. Two other instructional strategies pervade math at BTHS, both spurred by IB and validated by the

Common Core. One of the strategies is inquiry-based learning. Students are asked to use data sets to ask and answer questions, to apply mathematical strategies to real world problems, and to develop mathematical solutions. The other strategy is where students are asked to read and write mathematically, closing the gap between language arts and math.

4. Additional Curriculum Area:

BTHS offers students a rigorous science curriculum that requires graduates to complete a minimum of 45 credit hours in laboratory sciences. During the first two years, students are enrolled in 5 honors level science courses, equaling 25 credit hours. During the latter two years, students are enrolled in 2 higher level International Baccalaureate (IB) courses, equaling 20 credit hours. Additionally, beginning in 11th grade, students have the option to enroll into various electives that feature specialized study in the areas of life science and/or STEM studies. These requirements and offerings directly relate to the school's mission of integrating life science and engineering into a rigorous curriculum.

In 9th grade, students are enrolled simultaneously in honors level biology and chemistry courses. These introductory courses include pertinent science knowledge and skills and are infused with associated instrumentation and techniques. During the second semester of this year and extending into the first semester of 10th grade, students begin a thematic course entitled Biotechnology Lab Skills (BTLS). The BTLS course focuses almost exclusively on molecular biology and biotechnology techniques and skills that are infused into future courses. Students learn the basics of instrumentation and techniques and ultimately apply these skills in research projects. This is the first time that students explore scholarly research and original investigations, an integral part of the school's mission statement.

In 10th grade, students are enrolled simultaneously in an honors level physics course and a unique thematic course entitled Molecular & Agricultural Biotechnology. The physics course is an introductory level course that prepares students for higher level investigations in an IB course. The biotechnology course is taught at an honors level and addresses content that expands upon the foundation of knowledge gained in their previous biology and chemistry courses. Additionally, this course relies on the techniques and skills acquired in the BTLS course for increased exposure, expertise, and continuity. Some of the content in this course is parallel to what is taught in introductory college level courses. Therefore, the school's mission of rigorous life science education exploring scholarly research and original investigations is validated.

In grades 11 and 12, students are automatically enrolled into a higher level IB Biology course, supporting the life sciences theme. For a second higher level science students choose between higher level IB Chemistry or higher level IB Physics. Faculty and counselors encourage students to align this choice with their anticipated college major and intended career goals. Students receive counseling for elective choices that reinforce the same message. The IB program supports the school's mission of preparing students for higher education by engaging them in rigorous academics and by offering additional opportunities to perform scholarly research and original investigations. The IB Diploma is well recognized by higher education. One indication of this is a check box on the Common Application to indicate student status as an IB Diploma Candidate. Students can earn up to a year's worth of college credit for their IB course work.

BTHS also focuses intently on the 21st Century Life and Career Readiness Skills. As per its mission statement, BTHS takes many steps to prepare students for leadership in an increasingly demanding workplace. While all faculty integrate these standards in their curricular and co-curricular offerings, BTHS also employs a curriculum model to support students' learning 21st Century Life and Career Readiness objectives. Most notably, the school has formalized leadership for 11th and 12th grade students within the course "Leadership, Exercise, And Personal Growth," informally known as LEAP. Students use this time to explore many topics related to leadership, as well as career and college readiness. Through this course, all students become peer leaders to the underclassmen. As a co-curricular requirement for all students, BTHS has created Advisor Groups. Each group is headed by a faculty member and consists of between 6-8 underclassmen. Twice a month, students meet in organized groups and upperclass peer leaders present small lessons to the groups. The lessons relate to student issues such as time and stress management, and are developed in the LEAP course. Upperclass student leadership skills are assessed by the lead faculty member for the group. Additionally, BTHS requires each student to take Financial Literacy, a course that

addresses skills critical for life and work in the 21st century.

Finally, every 12th grade student has the opportunity to demonstrate the 21st Century Life and Career Readiness skills by completing a required senior year internship. Students spend approximately 4 weeks working at a science related site. This experience serves as a capstone project and provides students with an opportunity to apply their learning in a real world environment. The culmination of their internship is a presentation that synthesizes their experience. Internship sites of BTHS students have included Bristol-Myers Squibb, Rutgers University, Monmouth Medical Center, and Robert Wood Johnson University Hospital.

5. Instructional Methods:

Teachers at BTHS employ a variety of instructional techniques to deliver content. All courses are taught at an honors level and backward design is a universally applied tool in curriculum development and delivery. Thus, lesson plans are created with the goal of all students demonstrating mastery of the curricular skills and knowledge. Teachers' plans identify the learning objectives for the day and describe differentiated instruction to address various learning styles, including visual, auditory, and kinesthetic learners. Examples include the use of laboratory exercises, lecture with multimedia, lecture with discussion, projects, group work, and independent studies. Strategies for assessing student learning both formatively and summatively are also included in plans.

Technology is used frequently to support and enhance instruction at BTHS. All teachers are issued a laptop to use for instructional planning and delivery. Lesson plans and gradebooks are kept and submitted electronically. In addition, every teacher maintains a weblog or wiki to supplement his or her courses. Various online services are used to track student work and progress, including PowerSchool, Naviance, and TurnItIn.com. Students and parents are able to track individual progress and performance through personal access to these resources.

In addition, all BTHS staff and students are provided with a personalized Google email address associated with the school district. Each account allows students access to all services associated with Google, including but not limited to Google Drive and gmail. These features make it easier for students to collaborate, and provide a storage site for students' in-class work. These features also help address the technology deficit created by the fact that students cannot access the WiFi on their personal devices within the building.

BTHS has three dedicated computer labs, each housing approximately 24 computers for instructional use. In addition, there are seven portable laptop carts, with approximately 12 laptops in each cart, for use in the classroom setting. Many of the laptops have software that is used in class. For example, science classes may take advantage of Vernier software that accompanies probes and sensors in order to measure different variables, ranging from pH of a solution to velocity of an object. Likewise, there are a few interactive whiteboards (SMART boards) in the building that can be used to supplement classroom discussion and to give an active voice to more introverted students. All of these technologies allow students to study these topics in greater depth.

6. Professional Development:

The administration and staff of Biotechnology High School pride themselves on professionalism and improving student achievement. BTHS, in conjunction with Monmouth County Vocational School District has worked hard to create meaningful and informative professional development (PD) opportunities. MCSVD offers reimbursements to teachers who take college courses and attend out of district workshops. BTHS has also been employing the PLC model for grade level meetings, subject area meetings, and Instructional Council, which promotes horizontal and vertical alignment, and assists in strategic planning.

Teachers have played an important role in organizing and leading technology related PD to help staff to manage new and existing computer programs and tools, including but not limited to: Google, PowerSchool, PD360, TurnItIn.com, Naviance, SMART Boards and document cameras. During district professional

development days subject area teachers from across the district meet to discuss and revise curricula and assessments, and to address subject specific challenges. Curriculum development and revision for the district is led by a team of teacher leaders (Curriculum Coordinators). All curricula is based on state standards that are reflected in the curriculum document as well as in daily lesson plans. Technology standards, as well as the Life Skills and Career Readiness standards are integrated across the curriculum and reflected in the corresponding documents and instruction.

Professional development has always lined up with school and district priorities. This year, many changes came to New Jersey, driven by legislation called Achieve NJ. Primarily focused on educator evaluation, it also impacted professional development and mentoring. School Improvement Panels were formed and they have taken the lead in building level PD. Topics have been extrapolated from faculty surveys, observation data, and state initiatives (especially Common Core and PARCC). Differentiated instruction and the Common Core in English Language Arts were two areas of focus for PD at BTHS. Using differentiated instruction for PD both modeled best practice and allowed teachers to focus their time where they felt it would benefit their students the most. This was also the first year that every teacher at the school set Student Growth Objectives. This provided an excellent context for exploring terms like valid and reliable assessment, formative assessment, and target growth. The growth objectives will provide new data that can help measure the efficacy of the school's PD as well as providing teachers with some direction for next years' professional growth goals.

7. School Leadership

The Monmouth County Vocational School District's Board of Education sets policy that is implemented by administration, faculty and staff. BTHS conducts annual policy reviews and updates. Selected policies are summarized in the faculty handbook (available on the faculty Wiki) and the full policy manual is posted to the district website. Policy is reviewed at relevant times during the year, such as prior to issuing summative grades and attendance reports. Reminders for faculty are typically issued in informational emails or meetings. Policy is summarized for students and parents in the student handbook, included in the planner that is distributed to all students and posted to the school's website. Key policies are systematically reviewed during the first week of school and reminders go out via One Call, email, and the principal's blog.

Leadership decisions regarding programming and resource allocation are made collaboratively whenever possible. Backward design and broad based input are used to ensure decisions support achievement for all students. Student achievement objectives are defined by the school's mission statement and the IB learner profile. Programming and budget planning for school year 2014/15 are well underway. The principal and guidance counselor in charge of scheduling have already met with each subject area team in anticipation of building next year's schedule. Each team brings input from alumni, students, parents, their own informed professional opinions, and student achievement data to help make decisions about what will best support student achievement. Recent examples include changing Spanish V to AP Spanish, adding an elective in Computer Science and allocating all wishlist money to getting 24 Chromebooks in every classroom. Decisions across subject areas are considered at the monthly Instructional Council (IC) meetings. IC is chaired by a teacher-leader and discussions lead to decisions such as schedule changes to accommodate state testing, building processes to better manage laptop computers, and setting priorities for district equipment money.

Building and maintaining relationships are at the heart of student learning. The community sets norms for new students through its recruitment events, freshman orientation, weekly Advisor Group meetings, co-curricular events, and early and frequent intervention with students and parents. Teachers build relationships with students by extending themselves beyond the school day, providing extra help, traveling to competitions, and chaperoning and participating in events such as Evening of the Arts. Teachers at BTHS have high level professional relationships and many have developed friendships that flourish outside of school, contributing to a climate of success.

PART VII - ASSESSMENT RESULTS

STATE CRITERION--REFERENCED TESTS

Subject: Math

Test: NJ High School Proficiency
Assessment

All Students Tested/Grade: 11

Edition/Publication Year: 2013

Publisher: Measurement Incorporated

School Year	2012-2013	2011-2012	2010-2011	2009-2010	2008-2009
Testing month	Mar	Mar	Mar	Mar	Mar
SCHOOL SCORES*					
% Proficient plus % Advanced	100	100	100	100	100
% Advanced	99	100	96	95	95
Number of students tested	72	81	74	74	63
Percent of total students tested	100	100	100	100	100
Number of students tested with alternative assessment	0	0	0	0	0
% of students tested with alternative assessment	0	0	0	0	0
SUBGROUP SCORES					
1. Free and Reduced-Price Meals/Socio-Economic/Disadvantaged Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
2. Students receiving Special Education					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
3. English Language Learner Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
4. Hispanic or Latino Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
5. African- American Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
6. Asian Students					
% Proficient plus % Advanced	100	100	100	100	100
% Advanced	100	100	100	94	100
Number of students tested	17	18	15	16	10
7. American Indian or					

Alaska Native Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
8. Native Hawaiian or other Pacific Islander Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
9. White Students					
% Proficient plus % Advanced	100	100	100	100	100
% Advanced	100	100	95	95	94
Number of students tested	51	61	57	57	52
10. Two or More Races identified Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
11. Other 1: Other 1					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
12. Other 2: Other 2					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
13. Other 3: Other 3					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					

NOTES:

STATE CRITERION--REFERENCED TESTS

Subject: Math
All Students Tested/Grade: 9
Publisher: NJ Department of Education

Test: New Jersey Biology Competency Test
Edition/Publication Year: 2013

School Year	2012-2013	2011-2012	2010-2011	2009-2010	2008-2009
Testing month	May	May	May	May	Jan
SCHOOL SCORES*					
% Proficient plus % Advanced	100	100	100	100	
% Advanced	97	94	96	92	
Number of students tested	78	80	80	84	
Percent of total students tested	100	100	100	100	
Number of students tested with alternative assessment	0	0	0	0	
% of students tested with alternative assessment	0	0	0	0	
SUBGROUP SCORES					
1. Free and Reduced-Price Meals/Socio-Economic/Disadvantaged Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
2. Students receiving Special Education					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
3. English Language Learner Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
4. Hispanic or Latino Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
5. African- American Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
6. Asian Students					
% Proficient plus % Advanced	100	100	100	100	
% Advanced	100	88	100	95	
Number of students tested	22	25	19	20	
7. American Indian or Alaska Native Students					
% Proficient plus % Advanced					
% Advanced					

Number of students tested					
8. Native Hawaiian or other Pacific Islander Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
9. White Students					
% Proficient plus % Advanced	100	100	100	100	
% Advanced	96	94	98	90	
Number of students tested	52	54	51	62	
10. Two or More Races identified Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
11. Other 1: Other 1					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
12. Other 2: Other 2					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
13. Other 3: Other 3					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					

NOTES: Per request following initial application review of the NBRIS Team, we are including our scores for the NJ End of Course Biology Test mentioned in our application. Since science was not a drop-down option for this data table, we selected math, yet they are actually science scores.

STATE CRITERION--REFERENCED TESTS

Subject: Reading/ELA

Test: NJ High School Proficiency Assessment

All Students Tested/Grade: 11

Edition/Publication Year: 2013

Publisher: Measurement Incorporated

School Year	2012-2013	2011-2012	2010-2011	2009-2010	2008-2009
Testing month	Mar	Mar	Mar	Mar	Mar
SCHOOL SCORES*					
% Proficient plus % Advanced	100	100	100	100	100
% Advanced	97	81	89	74	79
Number of students tested	72	81	74	74	63
Percent of total students tested	100	100	100	100	100
Number of students tested with alternative assessment	0	0	0	0	0
% of students tested with alternative assessment	0	0	0	0	0
SUBGROUP SCORES					
1. Free and Reduced-Price Meals/Socio-Economic/Disadvantaged Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
2. Students receiving Special Education					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
3. English Language Learner Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
4. Hispanic or Latino Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
5. African- American Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
6. Asian Students					
% Proficient plus % Advanced	100	100	100	100	100
% Advanced	100	89	87	63	60
Number of students tested	17	18	15	16	10
7. American Indian or Alaska Native Students					
% Proficient plus % Advanced					

% Advanced					
Number of students tested					
8. Native Hawaiian or other Pacific Islander Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
9. White Students					
% Proficient plus % Advanced	100	100	100	100	100
% Advanced	96	80	90	77	85
Number of students tested	51	61	57	57	52
10. Two or More Races identified Students					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
11. Other 1: Other 1					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
12. Other 2: Other 2					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					
13. Other 3: Other 3					
% Proficient plus % Advanced					
% Advanced					
Number of students tested					

NOTES: