

U.S. Department of Education
2017 National Blue Ribbon Schools Program

[X] Public or [] Non-public

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

Name of Principal Ms. Jennifer Cava

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

Official School Name Academy for Science and Design

(As it should appear in the official records)

School Mailing Address 486 Amherst Street

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

City Nashua State NH Zip Code+4 (9 digits total) 03063-1282

County _____

Telephone (603) 595-4705 Fax (603) 262-9163

Web site/URL http://www.asdnh.org E-mail amy.bewley@asdnh.org

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

_____ Date _____
(Principal's Signature)

Name of Superintendent*Mrs. Jennifer Cava E-mail jennifer.cava@asdnh.org
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name SAU 401 - Charter School District Tel. (603) 595-4705

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

_____ Date _____
(Superintendent's Signature)

Name of School Board
President/Chairperson Mr. Peter Bewley
(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, to the best of my knowledge, that it is accurate.

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

The original signed cover sheet only should be converted to a PDF file and uploaded via the online portal.

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

Part I – Eligibility Certification

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 and National Blue Ribbon Schools requirements, are 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. All nominated public schools must meet the state's performance targets in reading (or English language arts) and mathematics and other academic indicators (i.e., attendance rate and graduation rate), for the all students group and all subgroups, including having participation rates of at least 95 percent using the most recent accountability results available for nomination.
3. To meet final eligibility, all nominated public schools must be certified by states prior to September 2017 in order to meet all eligibility requirements. 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 2011 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: 2012, 2013, 2014, 2015, or 2016.
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 has not been identified by the state as "persistently dangerous" within the last two years.
9. 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.
10. 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.
11. 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.
12. 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

Data should be provided for the most recent school year (2016-2017) unless otherwise stated.

DISTRICT

1. Number of schools in the district (per district designation):
- 0 Elementary schools (includes K-8)
 - 1 Middle/Junior high schools
 - 1 High schools
 - 0 K-12 schools
- 2 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. Number of students as of October 1, 2016 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	47	38	85
7	72	56	128
8	68	56	124
9	39	22	61
10	35	20	55
11	29	10	39
12 or higher	24	9	33
Total Students	314	211	525

4. Racial/ethnic composition of the school:
- 0 % American Indian or Alaska Native
 - 37 % Asian
 - 3 % Black or African American
 - 3 % Hispanic or Latino
 - 0 % Native Hawaiian or Other Pacific Islander
 - 57 % White
 - 0 % 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.)

5. Student turnover, or mobility rate, during the 2015 – 2016 school year: 3%

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, 2015 until the end of the 2015-2016 school year	3
(2) Number of students who transferred <i>from</i> the school after October 1, 2015 until the end of the 2015-2016 school year	12
(3) Total of all transferred students [sum of rows (1) and (2)]	15
(4) Total number of students in the school as of October 1, 2015	525
(5) Total transferred students in row (3) divided by total students in row (4)	0.029
(6) Amount in row (5) multiplied by 100	3

6. English Language Learners (ELL) in the school: 1 %
2 Total number ELL

Specify each non-English language represented in the school (separate languages by commas):

Hindi

7. Students eligible for free/reduced-priced meals: 2 %
Total number students who qualify: 7
8. Students receiving special education services: 2 %
10 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 conditions. It is possible that students may be classified in more than one condition.

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

9. Number of years the principal has been in her/his position at this school: 6
10. Use Full-Time Equivalents (FTEs), rounded to nearest whole numeral, to indicate the number of school staff in each of the categories below:

	Number of Staff
Administrators	6
Classroom teachers including those teaching high school specialty subjects	35
Resource teachers/specialists/coaches e.g., reading, math, science, special education, enrichment, technology, art, music, physical education, etc.	3
Paraprofessionals under the supervision of a licensed professional supporting single, group, or classroom students.	1
Student support personnel e.g., guidance counselors, behavior interventionists, mental/physical health service providers, psychologists, family engagement liaisons, career/college attainment coaches, etc.	7

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 15:1
12. Show daily student attendance rates. Only high schools need to supply yearly graduation rates.

Required Information	2015-2016	2014-2015	2013-2014	2012-2013	2011-2012
Daily student attendance	96%	96%	97%	95%	96%
High school graduation rate	100%	100%	100%	100%	100%

13. **For high schools only, that is, schools ending in grade 12 or higher.**
Show percentages to indicate the post-secondary status of students who graduated in Spring 2016.

Post-Secondary Status	
Graduating class size	30
Enrolled in a 4-year college or university	91%
Enrolled in a community college	3%
Enrolled in career/technical training program	3%
Found employment	0%
Joined the military or other public service	0%
Other	3%

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.

15. In a couple of sentences, provide the school's mission or vision statement.

Our mission is to nourish the minds of our students and encourage them to use their valuable abilities to lead advancements in science and technology, as well as to become thoughtful, compassionate, and engaged citizens for improving our democracy.

16. **For public schools only**, if the school is a magnet, charter, or choice school, explain how students are chosen to attend.

The Academy for Science and Design (ASD) is an open-enrollment, public charter school. The New Hampshire State Board of Education has set the enrollment cap for ASD to be 525 students in total. As there are a larger number of applicants seeking enrollment at the school than there are seats available, all applicants are entered into a public lottery. In order to participate in the public lottery, applicants must complete an informational application including proof of residency in New Hampshire. All applicants must also attend an Information Session hosted at the school, as it is important that potential students and their families understand the mission of the school and our academic program. The Academy for Science and Design does not discriminate on the basis of race, color, national origin, sex, age, or disability in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of their operations. The lack of English language skills shall not be a barrier to admission or participation in the school's activities and programs.

PART III – SUMMARY

As New Hampshire's top-performing public school, the Academy for Science and Design (ASD) has worked hard to meet the challenge of economic and societal change following the decline of the state's textile industry and expansion of Boston's high-tech corridor into the southern New Hampshire region. Established as a charter school and STEM specialty school in 2007, ASD is located on the outskirts of Nashua, New Hampshire's second largest and increasingly diverse city, reflecting an expanding immigrant population and its integration into the community. Though approximately half of ASD's current 525 students, grades 6-12, enroll from the Nashua area, the school enrolls students from thirty-three other towns, some rural, but most reflecting the broader region's economic interest in science/technology-based industry.

generated music is persuaded by students to join the school musical's technical team.

PART IV – CURRICULUM AND INSTRUCTION

1. Core Curriculum:

Core Curriculum

The academic program at the Academy for Science and Design (ASD) reflects the school's dedication to inspiring, engaging, and challenging our students to become the next generation of problem-solvers, students with not only highly developed academic abilities, but also with a keen global awareness and commitment to improving the lives of others. This latter objective, addressed through an approach that engages students in designing solutions to real-world problems, drives civic learning across the ASD curriculum.

A majority of the English Language Arts courses at ASD are integrated with the school's Social Studies/History program and co-taught as a three year sequence of Humanities I, II, and III. This integrated design is also consistent with a school learning standard for synthesizing knowledge from multiple subject areas to address essential questions. Students learn foundational skills of reading and writing in an authentic context of inquiry, ensuring greater retention of those skills as students continue through school.

ASD students acquire important factual knowledge as basis for applying that knowledge to form valid arguments in response to issues of the present. Accordingly, coursework in the Humanities moves chronologically from the scientific, political, economic, and cultural origins of civilization to the development of world regions - Africa, Asia, Europe, and the Americas - including their literature, geography, histories, governments, and cultures, and culminating with the literature, history, government, and economics of the United States, with emphasis on the key historical foundations of current policy debates.

Consistent with ASD's standards for understanding and applying mathematical concepts, the mathematics curriculum is designed around the principle that growth in the understanding and application of mathematical concepts is a continuing and ordered process. Accordingly, the program creates opportunities for recurring and varied contacts with the essential principles, processes, language, and notation of mathematics - woven, uniquely into a three-year course sequence that integrates Geometry, Algebra II, Precalculus, and Trigonometry so that concepts can be taught to support course work in other subject areas, such as Physics. Additionally, every graduate of ASD successfully completes a college-level Calculus course.

ASD's science curriculum reflects the school's belief in the benefit of exposing middle school students to as many fields of science as possible and then offering opportunities for those students to study those fields in depth as high school students. Accordingly, sixth grade students take daily classes in Engineering and Technology in addition to their core science course. In subsequent years, students learn biology and chemistry through an integrated class entitled Integrated Biology and Chemistry to provide hands-on learning and laboratory experience in line with the school's emphasis on learning and practicing the scientific method. Since these courses are taken in tandem with courses such as Aerospace, Experimental Physics, Foundations in Computer Science, Introduction to Environmental Science, and Technology Design, ASD has seen great success in motivating students who need such breadth of opportunity in order to build their confidence for exploring or specializing later at greater depth. At the high school level, for example, specialty opportunities exist in such electives as Concepts in Atmospheric Flight, Elementary Quantum Theory, Behavioral Ecology, and Environmental Engineering - and including college-level courses in Chemistry, Biology, Computer Science, and Physics.

ASD's social studies curriculum, integrated into the Humanities curriculum as discussed above, provides students with knowledge of and background in American and other world cultures and histories as the foundation for developing interpretive skills, such as reading comprehension and analysis, historical thinking and problem solving, primary source interpretation, and developing an argument using supporting evidence. Middle school students explore history through the course "History of Science and Technology,"

giving students an overview of science and technology throughout history, including how science and technology influence each other and human development as a whole. technology. In another required course, "Current Events in Science and Technology," students engage in problem-solving tasks related to civic awareness and responsibility as they consider the same social and ethical implications of progress faced by scientists and engineers. Also with regard to opportunities for civic learning and engagement, ASD requires that each student complete a minimum of 150 hours of community service to gain a deeper sense of themselves, their abilities and gifts, the needs of strangers, and their connectedness to the larger world.

College and Career Readiness

The ASD curriculum supports college and career readiness in a variety of ways. Required courses are geared to college and university recommendations for preparation, and ASD offers a number of college-level courses to give many students a head start in college preparedness. Another important support is ASD's emphasis on developing in students a strong knowledge base upon which they can base thoughtful and original arguments or hypotheses. ASD seniors also take a writing course "Writing for the Real World," focused on meeting the writing standards of college professors, as well as developing familiarity with documents most common in the corporate world. Perhaps most important to college/career preparedness, however, is the experience ASD students acquire in self-direction: developing original and worthwhile ideas, establishing priorities and organizing one's time, identifying key resources, working well with others on a team, and persevering in completing a project.

2. Other Curriculum Areas:

The Academy for Science and Design's visual and performing arts curriculum demonstrates the school's belief that the integration of creative thought and discipline is essential to long term success, as well as encourages students to view the world from varying perspectives. Courses available to all students at all grade levels are Visual Art and Band, and can be taken multiple times. One elective available to high school students that integrates the arts with science is a unique course entitled, "Creative Computing." This course combines aesthetic principles and creative practices from the arts with theory and methodology from computer science. Students learn how to visually and creatively communicate information by initially moving through the foundational skills in layout, digital rendering, and typography before moving on to study color theory and the psychological and compositional effects of color in print and digital media. Students are also welcome to design "Independent Study in the Arts" contracts, within which they design their own course of study in order to pursue an area of the arts not currently taught at ASD. Students are required to complete 1 credit of Art for graduation.

ASD requires all students to complete a Health/Wellness program, as well as physical education, for graduation, as the school believes that a healthy lifestyle is necessary for success in academics and career, and is essential maintaining a positive outlook on life. ASD's Health and Wellness course is designed to help students comprehend concepts related to health promotion and disease prevention; learn how to access valid health information and health-promoting products and services; demonstrate the ability to practice pro-health behaviors and reduce health-related risk taking; analyze the influence of culture, media, technology, and other factors on health; demonstrate the ability to use interpersonal communication skills to enhance physical/mental/emotional health; and demonstrate the ability to advocate for personal health. In addition to the Health course, students can either complete a PE contract, requiring an athletic coach or trainer to acknowledge that a student has completed at least 27 hours of athletic activity each semester, or can work with a physical trainer who is employed by the school to set individualized goals and work towards those goals with an assessment at the end of the semester. ASD requires 1.5 credits of Health and Physical Education for Graduation.

ASD offers four Foreign Language courses on campus: Mandarin, German, Spanish, and Latin. In order to support their varied interests, students are welcome to pursue the study of any other foreign language of their choice if using an approved program. Students have independently pursued many different languages, including American Sign Language, French, Hindi, and Hebrew. Students are required to complete 3 credits of a foreign language for graduation, but many continue on to study for 4 or 5.

Technology today is an ever-changing field, with advancements emerging almost every day. Consequently, ASD's curriculum is designed to shape the groundwork for continuous learning. Beginning in the sixth grade, ASD offers both formal technology instruction in computer classes and technology integration into the regular classroom. Beginning with exposure in the middle school years through an Exploring Computer Science course subtitled, "The Algebra Inside your Video Game," students learn computer programming principles and program design while applying algebraic and geometric concepts to create video games. Middle school students are also required to spend a semester studying Technology Design, providing a foundation for engineering-related skills, and focusing on creative problem-solving on both an individual and group level. All ASD high school students are required to enroll in "Foundations of Computer Science" as well as "Foundations of Engineering" in order to gain a practical understanding of both fields and how they can be applied to all other subjects. Students who specialize in technology-related courses in high school have a myriad of electives from which to select. These electives adapt to meet the most current recommendations from industry professionals in the field.

3. Instructional Methods, Interventions, and Assessments:

Instructional methods employed at the Academy for Science and Design are multidimensional. They including explicit teaching of foundational knowledge by teachers inside the classroom as well as self-directed student learning of basic content outside the classroom via technology resources, with the latter providing classroom time for interaction, practice, individual interventions, and problem/project-based activities. These methods vary depending on subject matter and the pedagogical strengths of individual teachers, with the constant being the individual student and his or her academic, personal, and social growth.

One example of how ASD's multidimensional approach is used to ensure high levels of learning is a course called "Learning Studios," taken by all juniors. In this course, students design and implement an authentic project to address a problem requiring collaboration across subjects. The project requires extensive research, analysis, and collaboration with faculty and classmates, and since topics are dependent on student interest and their chosen area of specialization, students of greater and lesser ability support one another around their mutual interest in solving the problem at hand, making use of each student's individual contributions as well as knowledge acquired from their regular courses. For example, when the Director of ASD was scheduled to pitch an idea to an Entrepreneurs Association for a \$20,000 grant, teams of students in Learning Studios designed optimal spaces for self-directed student learning, drawing upon coursework in engineering, health and wellness, technology design, and even psychology to develop plans to share with the Director. As Seniors, students then apply the skills developed in Learning Studios to a year-long Senior Project.

An obvious value of focusing on the growth of individual students through the approach described above is that the needs of every student are clearly revealed in multiple contexts for student-centered, rather than teacher-centered, learning. Consequently, interventions at ASD remain central to the ongoing process of addressing individual needs, rather than being consigned to the periphery of the program. The multidimensional structure of ASD's instructional approach offers continuous opportunities for teachers and staff to address academic and personal difficulties of students through one-on-one tutoring; student-to-student peer tutoring; flexible small-grouping; individual counseling; and other interventions often employed in collaboration with special education and community specialists to address the specific needs of ASD's approximately one in nine students requiring Special Education Services or accommodations under Section 504.

Consistent with the multidimensional nature of teaching and learning at ASD, assessments for measuring and informing progress are varied as well. They include formative tests designed by teachers to assess understanding of ideas and information, and they include common summative assessments prepared by teachers of the same subject. During periods of explicit instruction, teachers are also adept in the use of monitoring strategies to ascertain group and individual progress. During the relatively greater amount of class time spent with hands-on, interactive learning, teachers' noted observations and conferences with individual students are also used to analyze and improve student performance.

In view of ASD's emphasis on project/problem-based and self-directed learning, performance assessment plays a significant role in measuring individual progress of students, given its ability to assess a much

greater range of cognitive and non-cognitive abilities than traditional testing alone. Rubrics are used to measure the quality of student projects and performances, capturing not only the quality of the process and final product, but also self-direction skills such as initiative, organization, resourcefulness, ethical judgment, persistence, and leadership. Assessments by teachers and self-assessments by students are used in combination, reflecting ASD's synergistic view of teaching and learning itself.

Summative results from standardized testing (Smarter Balanced and College Board) are also analyzed during yearly planning for making curriculum adjustments and focusing professional development. Data for improving school performance overall is generated through continuous interaction among the school director, school staff, parents, and community partners, as well as through surveys for indicating areas of concern.

Given ASD's current high performance, methods for ensuring maintenance of this level include the abovementioned evaluation tools for charting and improving performance; continued networking for sharing best practices; regular input from the school's active board and its committees, including monthly meetings for strategic planning; ongoing faculty and administrative research on exemplary school models of educational innovation; and outreach to high quality, external organizations for gaining needed perspective on ways to leverage further improvement.

PART V – SCHOOL SUPPORTS

1. School Climate/Culture:

The supportive and engaging environment at the Academy for Science and Design has been a pillar of the school's success from the very first days the school opened its doors to only thirty students. While rapid expansion in the early years of the school required adjustments to maintain the unique culture among an ever-growing student population and faculty, the spirit of the school and its members has remained similar to that of the early days of the school, with a strong feeling of connectedness and purpose.

Aside from the intrinsically motivating features of the academic program described earlier, students are also motivated by the school's unified support of its mission as a STEM specialty school and its commitment to a spirit of "all for one and one for all." One notable program that supports our students' social, academic, and emotional growth is ASD's Advisory Program. Student advisory groups are comprised of approximately fifteen students who meet daily with a faculty advisor who moves along with the students as they progress through the academic program. In addition to engaging in team-building, learning organizational skills, and planning for college and career, students build lasting relationships with their faculty advisor as well as with their peers. Often, advisories will initiate activities that support surrounding community organizations, such as the Nashua Soup Kitchen or the Nashua Children's Home. Many students also volunteer to participate in ASD's Peer Tutoring program, assisting peers who are struggling in various courses - which demonstrates and strengthens their interest in elevating others' success and in seeing themselves as a part of a larger community of learners. Especially motivating for Junior and Senior students is the "private" space they have in a common workspace and lounge adjacent to the High School Advisor and High School Guidance Counselor's office. Not monitored as a traditional "classroom," the students feel trusted and motivated to work independently and responsibly.

ASD's shared vision and clear sense of purpose also helps teachers feel valued and supported as members of the ASD community. Beyond the opportunities teachers have for exerting leadership in shaping the school's academic program, teachers' perspective on school policy is also valued by their having representation on the school's Board of Trustees. The ASD Director also works to instill a spirit of trust and collegiality among the entire faculty by having an open door to teachers with academic or personal concerns, or who have ideas for improving the school program. Teachers are expected to design their own classroom policies and procedures within broad parameters of school policy, which also contributes to their sense of value as professionals.

2. Engaging Families and Community:

Family engagement at the Academy for Science and Design is evident in many different ways. Each year, ASD runs an Annual Fund in an effort to close the gap left by the limited funding received by the state (which is less than 50% of the funding received by district schools.) Over the last decade, the Annual Fund has raised close to one million dollars in family contributions. Additionally, ASD families can always be seen providing volunteer support throughout the building. For example, in the 2015-2016 academic year, 30% of ASD families volunteered for a total of 4,418 hours. Volunteers are celebrated at an annual luncheon, and an ASD Volunteer of the Year is recognized on a plaque in the lobby.

One reason for such strong family engagement is the school's highly effective school-to-home communication and its continued efforts to reach out to families for feedback about the program. Families receive regular communications from the school by way of a Weekly Bulletin, as well as through various social media channels. The director of the school has an open invitation to participate in a quarterly "Director's Chat" and sends anonymous surveys to families with questions regarding every aspect of the school. There are two significant family-related events, a Fall Festival and a Spring Gala. The Board of Trustees is comprised of 50% parent members, and welcomes feedback from families at any time.

Community partnerships are critical to ASD's commitment to nourish the next generation of leaders in science and technology. Area businesses, educational institutions, and private individuals have had the

generosity, vision, and creativity to find many ways of supporting the school. This support has come in the form of internships, mentorships, resource sharing, and donations of funding, goods, and services.

The most successful vehicle for community engagement (and also family engagement) has been ASD's SPARK Conferences (Symposium Promoting Advancement of Real-World Knowledge). SPARK Conferences were created by the school's director to expose students to various STEM careers, relevant topics, and issues in the realm of science and technology, as well as to cultivate their unique interests and talents. Presenters at SPARK include members of the ASD school community such as faculty, high school students, and parents. In addition, SPARK presenters come from local community organizations, higher education, and the corporate sphere. These presenters believe it is critical to enlighten and inspire our young leaders of tomorrow through exposure to experiences, ideas, and challenges that will help them to become creative and energetic leaders.

3. Professional Development:

Professional growth activities at the Academy for Science and Design are designed to support the ongoing efforts of faculty, staff, and administration to build an effective environment for student-centered learning. Central to those efforts is the school staff's shared commitment to being reflective practitioners: professionals whose routine work at the school includes integrated opportunities for gaining perspective on one's own performance and for developing insight into the ways of becoming more effective.

In support of this process, and with the needs of teachers specifically in mind, ASD has developed a Professional Growth manual which documents the process of annual goal setting, ongoing reflection, and subsequent growth activity that characterize the school's approach to professional development. In support of this process, the Director, with support from the Dean of Academics, Dean of Students, and Department Heads, form a team to help individual teachers target their strengths and weaknesses, develop appropriate ways to measure their progress towards self-determined goals, and identify appropriate resources - both within and external to the school - for supporting them. Mirroring the effort to encourage ASD's students to be self-directed, the school administration strives to create a professional environment of self-efficacy - encouraging teachers to forge their own path towards continuous improvement.

Among other features of ASD's professional development environment is a weekly, teacher-led seminar for discussing a variety of emerging concerns - curricular and other issues impacting school culture. In addition, educators at ASD engage in monthly meetings to share best practices with colleagues. These meetings set the stage for follow-on mentoring of educators by their own colleagues, or for personal research or participation in relevant coursework or other programs outside ASD. As a charter school, ASD also has the additional flexibility to employ both certified teachers from traditional educator training programs as well as industry professionals with practical expertise in fields related to the subjects and courses they were hired to teach. ASD's professional development program draws upon this variety of backgrounds by encouraging traditional teachers to acquire real-world contextual knowledge from the industry professionals, while the industry professionals learn pedagogical strategies from the traditional teachers.

As a recognized state leader of educational innovation, ASD also engages in outreach activities that focus on sharing best practices among educators statewide. Among these activities is ASD's hosting of the statewide Best Practices Conference for five consecutive years on behalf of the New Hampshire Charter School Association. ASD's leadership in this regard has resulted in building an expanding network of innovative teachers, administrators, and others interested in professional improvement to benefit students.

4. School Leadership:

The Director at the Academy for Science and Design recognizes that strong leadership is vital to the school's success, and that leadership is most effective when it is distributed among a team of skilled, empowered educators. The Leadership Team at ASD includes the Director, Business Manager, Dean of Students, Dean of Academics, Admissions/Marketing/Communications Manager, and Operations Manager. The full team meets monthly on the day following Board of Trustees meetings, with subsets of the team

meeting weekly to troubleshoot problems, plan for upcoming activities, and provide the Director with various information relevant to the roles of the individuals.

The distribution of leadership continues into the faculty, with teachers serving as Department Heads in the core subject areas. Department Heads work more directly with the faculty in their department, offering support, performing informal walk-through observations and feedback, and providing recommendations regarding their department to the Dean of Academics and Director through weekly meetings. Additionally, faculty and staff members who are interested in taking on other leadership roles within the building are empowered by the Director to do so. For example, a faculty member voiced an interest in the development of a “Sick Bank” as a place for individuals to support colleagues who may suffer a hardship due to extensive absences from school. The Director encouraged the faculty member to develop a committee and to be the head of that committee. Similarly, the Director appoints a faculty member to be the Principal of ASD’s Summer Program each year, with the freedom to design the program the way he or she wishes, working in collaboration with other educators in the building.

The role of the Director is essentially a hybrid between that of a school Principal and that of a district Superintendent. She is responsible for the daily operational management of the school, but additionally sits as a non-voting member on the Board of Trustees and all Board Committees, providing insight and direction at the school-level and the Board level. The Director also bears additional responsibilities such as direct interaction with members of the New Hampshire Department of Education, members of the State Board of Education, corporate partners, and state legislators. It is for this reason that a distributed leadership that empowers others to make decisions and continue to progress is essential, and often those responsibilities result in the Director being off site. This approach to leadership reinforces the school’s approach towards educating its students, which is to provide support, an inspiring and trusting environment, and the resources necessary to succeed.

Part VI – STRATEGIES FOR ACADEMIC SUCCESS

Serving as both a public, open-enrollment middle school and a high school with a STEM-specialty focus, the success of the Academy for Science and Design is based on its commitment to engage a diversity of student learners at both of these levels through an exemplary structure for broadening student access to STEM-focused learning opportunities. Accordingly, ASD's program design is the school's signature strategy for the academic success of the variety of students who enter the school - a strategy focused on providing early exposure to opportunities in STEM that younger students may be unaware of, and then encouraging and supporting those students as they pursue a highly personalized pathway to a specialized STEM field in high school.

ASD's middle school program provides younger students the chance to explore, where by design all students are exposed to aerospace, physics, environmental science, engineering, computer science, biology, and chemistry. Students completing ASD's middle school program enter high school either as students continuing into ASD's more specialized STEM curriculum or as students moving into district or private institutions with both a keen awareness of these fields, and knowledge about their potential interests and abilities to continue to study such fields. These exploratory courses, often taught by industry professionals, combined with their engagement in ASD's many planned and incidental learning experiences described earlier in this application, have a profound and lasting impact on students, including those who may have been only curious about STEM upon enrolling in ASD.

Students who choose to continue into ASD's high school program, or students who enter the high school program from other institutions, are empowered to declare an area of specialization within STEM, allowing them to explore more deeply into a field of their own choice. This deeper understanding culminates in a capstone senior project, in tandem with an internship experience that requires 100+ hours of industry experience under the mentorship of an industry professional, giving students an authentic opportunity to demonstrate their ability and interest to continue their studies beyond the walls of ASD. Currently, 100% of ASD graduates continue into higher education, with a vast majority selecting STEM majors.

A remarkable sense of ownership over their high school education is reflected in ASD graduates' continued support of the mission of the school as alumnae, often inspired to return to share their experiences with students still progressing through the program. These graduates leave little doubt in the minds of our many types of students that the ASD experience will set them on a successful course.