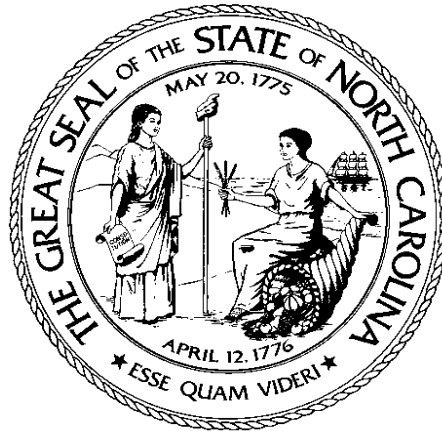


Research Triangle High School



Charter School Application
Opening in the Fall of 2012



Board of Directors
Research Triangle High School
Research Triangle Park, NC 27709

Submitted to:

North Carolina Department of Public Instruction
NCDPI/Office of Charter Schools
301 N. Wilmington Street
Raleigh NC 27601-2825
919-807-3491

Mailing Address:
6303 Mail Service Center
Raleigh, NC 27699-6303

Research Triangle High School

I. APPLICATION COVER PAGES

Name of Proposed Charter School: Research Triangle High School

Name of nonprofit organization under which charter will be organized or operated: Contemporary Science Center, Inc.

Has the organization applied for 501(c)(3) non-profit status: Yes ☒ No ☐

Provide the name of the person who will serve as **the primary contact** for this Application. **The primary contact** should serve as the contact for follow-up, interviews, and notices regarding this Application.

Name of Contact Person: Pamela Blizzard

Title/Relationship to Nonprofit: Executive Director

Mailing address: PO Box 13453, RTP, NC, 27709

Location of Proposed Charter School (LEA): Durham County

Conversion:

No: ☒

Yes: ☐ If so, Public ☐ or Private: ☐

Description of Targeted Population:

Research Triangle High School (RTHS) is committed to enrolling students who reflect the Triangle region's diversity in ethnicity, socioeconomic status, rural vs. urban composition, gender and non-English-speaking origins. RTHS will be a place where this broad spectrum of students can learn in unique and innovative ways in order to prepare them for the global workplace of the 21st century. The school will rely upon cutting-edge instructional techniques that blend online material and industry-based experiences into a college-preparatory curriculum. Coursework will be Flipped so that students will learn from online lectures and material *outside* of class time, and learn from group labs, seminars and collaborative projects *during* class time. Students will be guided to develop the independent self-directed learning skills required to succeed in this curriculum, as a way to prepare them for our mobile, connected world. RTHS will have a strong Science, Technology, Engineering, and Math (STEM) focus, requiring all students to graduate as scientifically literate citizens, *and* offering the guidance and support to help all students from a broad background achieve that goal. The school will equally offer a solid liberal arts curriculum including the arts and sports. RTHS will be a

Research Triangle High School

school for students who are interested in their professional futures. Our goal will be to graduate young people who are both prepared for college-level studies, and have learned how to demonstrate the 21st century skills that Research Triangle Park (RTP) companies seek.

Research Triangle High School

Proposed Grades Served: 9-12th

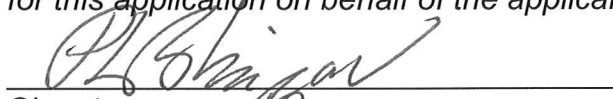
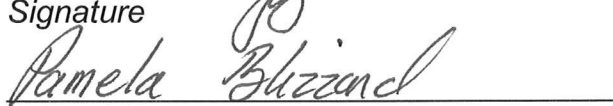
Proposed Total Enrollment: 420 in Yr 5
If middle school is added: 570 in Yr 8

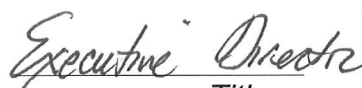
Projected School Opening Year: 2012

Month: August, 2012

School Year	Grade Levels	Total Projected Student Enrollment	Year Round	
			YES	NO
First Year	9	160		X
Second Year	9 & 10	250		X
Third Year	9, 10, 11	330		X
Fourth Year	9, 10, 11, 12	420		X
Fifth Year	9, 10, 11, 12	420		X
OPTIONAL: Sixth Year	6, 9, 10, 11, 12	470		X
Seventh Year	6, 7, 9, 10, 11, 12	520		X
Eighth Year	6, 7, 8, 9, 10, 11, 12	570		X

I certify that I have the authority to submit this application and that all information contained herein is complete and accurate, realizing that any misrepresentation could result in disqualification from the application process or revocation after award. I understand that incomplete applications will not be considered. The person named as the contact person for the application is so authorized to serve as the primary contact for this application on behalf of the applicant.


 Signature

 Printed Name


 Title
 11/3/11
 Date

Research Triangle High School

II. TABLE OF CONTENTS FOR THE APPLICATION

Please provide a clear and precise table of contents to the proposed charter application that guides the reader through the document in correct sequence as outlined in the application provided.

Certain personnel portions of the application were redacted.

I. APPLICATION COVER PAGES.....	2
II. TABLE OF CONTENTS FOR THE APPLICATION.....	5
II.A. TABLE OF FIGURES.....	7
II.B. TABLE OF TABLES.....	7
II.C. TABLE OF ACRONYMS.....	7
III. MISSION, PURPOSES and EDUCATIONAL FOCUS.....	8
III.A. MISSION.....	8
III.B. EVIDENCE FOR NEED OF THE PROPOSED SCHOOL WITH THE SELECTED MISSION.....	9
III.C. PURPOSES OF PROPOSED CHARTER SCHOOL.....	10
III.D. EDUCATIONAL FOCUS.....	17
IV. GOVERNANCE.....	18
IV.A. PRIVATE NONPROFIT CORPORATION.....	18
IV.B. TAX-EXEMPT STATUS.....	18
IV.C. ORGANIZATIONAL STRUCTURE OF PRIVATE NONPROFIT.....	19
IV.D. PROPOSED EDUCATIONAL MANAGEMENT ORGANIZATION.....	31
IV.E. ADMISSIONS POLICY.....	31
V. EDUCATION PLAN.....	33
V.A. INSTRUCTIONAL PROGRAM.....	33
V.B. SPECIAL EDUCATION.....	48
V.C. STUDENT CONDUCT AND DISCIPLINE.....	51
V.D. TIMELINES.....	57
VI. BUSINESS PLAN.....	61
VI.A. PROJECTED STAFF.....	61
VI.B. ENROLLMENT.....	67
VI.C. PROJECTED ENROLLMENT 2012-13 through 2016-17.....	73
VI.G. MARKETING PLAN (GS 115C.238.29F(g)(1-7)).....	74
VI.H. SCHOOL AUDITS.....	77
VI.H.1. PROGRAM AUDITS GS 115C-238.29B(b)(6).....	77
VI.H.2. FINANCIAL AUDITS GS 115C-238.29F(f)(1).....	78
VI.I. HEALTH AND SAFETY REQUIREMENTS (G.S. 115C-238.29F(a)).....	79
VI.J. CIVIL LIABILITY AND INSURANCE (GS 115C-238.29F(c)).....	83
VI.K. TRANSPORTATION (G.S. 115C-238.29F(h)).....	83
VI.M. LEA IMPACT STATEMENT.....	84
VII. APPENDICES.....	84
APPENDIX A: Contemporary Science Center Programming Details.....	85
APPENDIX B: Faculty Advisory Development Team Biographies.....	88
VIII. SIGNATURE PAGE.....	95

Research Triangle High School

Research Triangle High School

II.A. TABLE OF FIGURES

Figure 1. Mission statement	8
Figure 2. Non-profit corporate structure	20
Figure 3. Technology dream flowchart	61
Figure 4. Technology requirements flowchart	62
Figure 5. Capabilities at launch flowchart.....	62
Figure 6. Drive times from RTHS	89
Figure 7. Percentage of students taking Algebra I.....	91
Figure 8. 400 Park Center Drive	114

II.B. TABLE OF TABLES

Table 1. Comparison of classroom objectives	54
Table 2. Graduation requirements for RTHS	64
Table 3. Assessment timeline.....	66
Table 4. Timeline of critical activities for school opening	81
Table 5. RTHS projected staff chart for year 4 at full enrollment	82
Table 6. Projected enrollment for first eight years of RTHS.....	93
Table 7. Projected enrollment 2012-13 through 2016-2017	95
Table 8. Budget: Revenue projections 2012-13 through 2016-2017	97
Table 9. Budget: Expenditure Projections 2012-13 through 2016-2017	99

II.C. TABLE OF ACRONYMS

ACRE	Accountability and Reform Effort
AP	Advanced Placement
A&P	Alliances & Partnerships
AVID	Advancement Via Individual Determination
BEST	Baccalaureate Education in Science and Teaching
CSC	Contemporary Science Center
EOCs	End-of-Course
ESL	English as a Second Language
ESE	Exceptional Student Education
IEP	Individual Education Plan
LD	learning disabled
LEP	Limited English Proficient
MI	Multiple Intelligences
NCTAF	National Commission on Teaching and America's Future
NCLB	No Child Left Behind
NCBC	North Carolina Biotechnology Center
NCSSM	North Carolina School of Science and Math
PD	Professional Development
PISA	Programme for International Student Assessment
RTHS	Research Triangle High School
RTP	Research Triangle Park
STEM	Science, Technology, Engineering, and Math
WIDA	World Class Instructional Design and Assessment

Research Triangle High School

III. MISSION, PURPOSES and EDUCATIONAL FOCUS (G.S.115C-238.29A)

III.A. MISSION

The mission of the proposed charter school is as follows:

The mission of the Research Triangle High School is to increase access to globally competitive Science, Technology, Engineering, and Math (STEM) education for students and teachers across North Carolina, by incubating, proving and scaling innovative models of teaching and learning.

Increase Access To A Globally Competitive STEM Education in NC

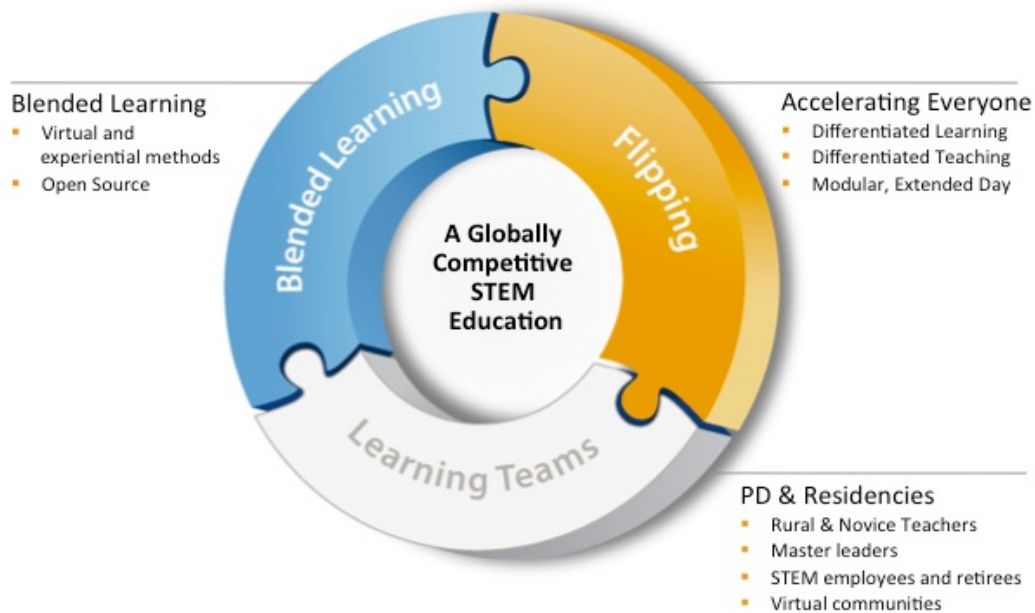


Figure 1. RTHS will increase access to a globally competitive STEM education.

Research Triangle High School

III.B. EVIDENCE FOR NEED OF THE PROPOSED SCHOOL WITH THE SELECTED MISSION

In 2009, the Programme for International Student Assessment (PISA) released its latest student scores.¹ The US results – 31st in math and 23rd in science amongst industrialized nations - jolted the United States business and education communities into greater, documented awareness of our acute national need for improved STEM education. In September 2010 the President’s Council of Advisors on Science and Technology made several strong recommendations to the White House for our nation, including:

1. Create 1,000 new STEM-focused schools over the next decade
2. Create opportunities for inspiration through individual and group experiences outside the classroom, and
3. Recruit and train 100,000 great STEM teachers over the next decade who are able to prepare and inspire students.²

The Research Triangle High School (RTHS) plans to address each of these recommendations with the intention of closing the global achievement gap across a diverse population with diverse achievement levels, as a model and opportunity for other schools in NC.

1. Create a new STEM-focused school

The Contemporary Science Center (CSC) was established in 2004 to allow science students across the state to change their understanding of what STEM work is really like by experiencing the developments of Research Triangle companies. After four successful years without its own space, the CSC opened its own teaching immersion Lab in Durham in 2008, in partnership with the Museum of Life + Science, with support of Biogen Idec Foundation and the North Carolina Biotechnology Center (NCBC). Over the past 3 years the CSC Lab has grown to serve over 900 teachers and students per year. See **Appendix A**.

After the opening of the CSC Lab, the mission of the CSC was expanded to focus on deeper, broader impact on North Carolina’s education system. In summer 2010, recommendations from a few key leaders of the Board of Directors of Research Triangle Foundation, the Research Triangle Park managing entity, set CSC on this new path intended to have a stronger and broader impact on STEM education in the state than the original CSC program alone has been able to achieve. Today, the CSC is developing an innovative public STEM school that will model and scale new ways to educate, using the entrepreneurship, talent and resources of the Research Triangle to ultimately change the face of education in North Carolina. The RTHS will be designed to incorporate the kinds of authentic, rigorous experiences that the CSC has provided for the past seven years.

¹ OECD (2010), PISA 2009 Results: Executive Summary

² <http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-stem-report.pdf>

Research Triangle High School

2. Create opportunities for inspiration through individual and group experiences outside the classroom

The scientific community is one of the most important segments of the state's economy with a vital hub in RTP. The Contemporary Science Center (CSC) opened with the assistance of Research Triangle companies who helped define how to integrate their ongoing product development into high school-level curricula. The CSC has taken this curriculum and developed the Field Study—a program to nurture students' enthusiasm for careers in science and math, as well as improving their understanding of core competencies in their standard courses. Field Studies are hands-on, rigorous experiences of RTP companies' work, presented as problem-based learning for middle and high school students in science and math courses. The CSC has developed seven successful Field Studies over its past seven years, becoming experts in the development of immersive, problem-focused units based on corporate STEM research and development for teenagers. Continuous assessment of students experiencing these Field Studies shows strong shifts in students' attitudes about and enthusiasm for further STEM learning as detailed in **Appendix A**. The CSC's core knowledge of how to design and implement attitude-changing hands-on experiences is the foundation of RTHS.

3. Recruit and train great STEM teachers who are able to prepare and inspire students

In the recent Our Kids Won't Wait Report³, a cadre of statewide education experts recommended that North Carolina establish goals and plans to increase the pipeline of highly qualified teachers in the state, accelerate the establishment of regional leadership academies and harness technology to fill the current staff development void for school leaders. RTHS intends to intentionally target these very needs identified by the Public School Forum report through its programmatic focus on augmenting the pipeline of new and early-career teachers learning strong STEM teaching skills.

III.C. PURPOSES OF PROPOSED CHARTER SCHOOL

State the relationship between the six legislated purposes, as specifically addressed in the NC charter school statute GS 115C-238.29A, and the proposed school's operations.

RTHS will represent all six legislated purposes for charter schools. We will offer the students, teachers, and parents in the Triangle communities an innovative and quality education expanding their choices in the types of educational opportunities that are available within the public school system. A team of educators from Raleigh Charter, East Chapel Hill and Enloe High Schools, KIPP Gaston College Prep, Teach for America and UNC-Chapel Hill's School of Education volunteered their time and came together to advise and define these purposes, drawing on their deep experiences and broad backgrounds to create a next generation charter school. The biographies of these

³ http://www.ncforum.org/doclib/StudyGroup_final.pdf

Research Triangle High School

Faculty Development Advisors are detailed in **Appendix B**. Led by Pamela Blizzard, the founder of the CSC and Raleigh Charter High School and Eric Grunden, the science department chair at Raleigh Charter High School, this “Charter 2.0” next-generation school is intended to use the strength of other NC charters – autonomy that allows greater flexibility and innovation⁴ - and share their experiences with the state’s public schools.

1. Student learning [G.S. 115C-239.29A(1)]

To improve student learning, RTHS will:

- Employ multiple methods of content delivery to better match student learning modalities. Examples will include:
 - Project-based experiences
 - A blend of virtual and experiential learning
 - Online content from the wide spectrum of materials like audio and video casts, animations, online courses ranging from Khan Academy to MIT’s OpenCourseWare
- Ensure wide availability of content and resources through electronic media both on- and off-campus to maximize student contact time with learning materials
- Measure student use of resources and match this data with student performance data to determine more effective means of instruction within the varied content presentation methods afforded students
- Create Learning Teams, a learning-objective-focused group of teaching mentors, novice teachers, industry experts and retirees, to support students
- Infuse experiential learning into the curriculum to both reinforce and supplement the standard learning objectives
- Use the Flipped Classroom model, an innovative teaching methodology, to increase student contact time with instructors, giving more guided practice time and helping students to use time more effectively, including taking part in supplemental activities
- Offer an extended day to provide students with scheduling flexibility as well as increased content time
- Endeavor to provide more than one year of learning gains per year of instruction.

RTHS seeks to use modern techniques to teach students to learn in ways more consistent with the demands of the modern workplace and civil society. Creating new study habits, value systems for learning, and helping students to be owners of their own learning styles are the chief challenges facing the school and its students. North Carolina School of Science and Math (NCSSM) is specifically committed to helping RTHS develop and resource the wide variety of electronic content needed to achieve some of the goals through their 5-person digital instructional development team. Taking advantage of the statewide infrastructure of the NC Virtual Public School and the state’s

⁴ *Free to Lead: Autonomy in Highly Successful Charter Schools*, National Alliance for Public Charter Schools, Ableidinger & Hassel, April 2010

Research Triangle High School

Learning Object Repository will be of paramount importance in our efforts to increase access to this new way of educating, across the state.

2. Increase learning opportunities for all students with special emphasis on expanded learning experiences for students who are identified as at risk of academic failure or academically gifted [G.S. 115C-239.29A(2)].

Two principal means are to be employed to aid in students falling outside of the middle of the achievement distribution for incoming students. First, increased direct student-teacher contact time as facilitated by the Flipped classroom will enable teachers to better diagnose individual learning issues and target students with specific tailored remedies. It will be far more difficult to “fall through the cracks” as can easily happen in a standard classroom model where a non-existent ‘average’ student is taught and all students are expected to take what they can from that instruction. Second, differentiation, in the form of multiple content-distribution methods chosen by the student, will enable students to address content in ways more meaningful and efficacious for them. A variety of content delivery will be available constantly and in nearly every location, and will afford students opportunities to spend more time learning and reviewing when they need it.

RTHS has also engaged resource support from local universities and learning institutions, such as Wake Technical Community College (Wake Tech) as a source for technical STEM courses delivered online to our high school students as a way to accelerate the progression of more advanced learners into an Early College-like program.

3. Encourage use of different and innovative methods [G.S. 115C-239.29A(3)].

The RTHS education model is built on several innovative components, namely:

- The Flipped Classroom, in which content presentation is delivered outside of class in the traditional “homework” space while “classwork” becomes active and engages both teacher and student in individual meetings, small group instruction, and supplemental activities. This will afford students much greater practice time with content and skills as well as engaging them socially in constructive ways during class.
- Differentiated instruction in the form of extensive use of content “playlists” consisting of teacher and student created presentations, discussion groups, wikis, open source courseware, digital video and audio, allowing students to access course content on demand and from locations beyond the classroom and school.
- Differentiated learning in the form of student choice (with guidance) of content forms, scheduling (both time and place), and feedback from assessment that help match students’ interests and needs better.

Research Triangle High School

- A long-format school day with extra periods built in so that students have time for practice and additional content exposure during the school day. Students would attend a number of regular classes and would use the additional time for study halls, individual review and practice, teacher office hours, research or group collaborative work, including internships on or off campus.⁵

4. Create new professional opportunities for teachers, including the opportunities to be responsible for the learning program at the school site. [G.S. 115C-239.29A(4)].

RTHS will focus its professional development (PD) efforts in 3 areas – 1) a strong internal PD program for all staff, modeled on the Learning Teams practice from National Commission on Teaching and America's Future (NCTAF) (see below); 2) the inclusion of local in-service teachers in the school's Learning Teams, beginning with the UNC-Chapel Hill Baccalaureate Education in Science and Teaching (BEST) program; and 3) the development of a Teacher Residency program for experienced but early-career, rural teachers.

Scope & Sequence of Professional Development

Similar to solid classroom instruction, the PD at the school will have a scope and sequence outlining objectives and end goals for the PD program. In order to provide a meaningful professional development experience for our teachers, and encourage retention, their PD needs to make logical sense as they transition between topics, covering everything from team development to instructional skills. Additionally, teachers will be held accountable for acting on PD focuses for the year in order to allow them to build onto each.

This professional development will need to cover multiple tiers, as the school will be recruiting and developing both master teachers as well as novice and early-career 'Residents', teachers who spend a year at the RTHS learning and working under a master teacher in the Learning Teams. The research and programs of National Commission on Teaching and America's Future (NCTAF) will inform the design and running of our Learning Teams, and includes regional scientists and community volunteers as team members. Therefore the scope & sequence of professional development will be focused both on classroom instruction for all as well as effective teacher coaching/mentoring for the master teachers.

As part of our professional development, we will work with the University of North Carolina at Chapel Hill (UNC-CH) School of Education towards the eventual placement of their new BEST program graduates into RTHS. A partnership with UNC BEST program and RTHS teachers may evolve as RTHS teachers become qualified mentors,

⁵ *Time Well Spent: Eight Powerful Practices of Successful, Expanded-Time Schools*. Report from the National Center on Time and Learning, September 2011.

Research Triangle High School

allowing BEST pre-service teachers to join our learning teams and complete pre-service training at RTHS.

Summer Professional Development

During the summer break, there will be professional development for teachers, in the same way that we will provide additional enrichment experiences for students. This professional development will focus specifically around training mentor teachers to effectively coach and develop their residents, to prepare for their arrival in August. It will involve instructional coaching theory and research, as well as opportunities for practice to enhance their ability to provide feedback and support to developing teachers.

Data on Teacher Effectiveness

To compare teachers' current performance to where we want them to be, we will continuously collect data from and on our teachers. This will be done a variety of ways, allowing for the most thorough analysis of current professional development. Based off of models used by Teach For America, this data includes (but is not necessarily limited to):

- **Student Achievement Data:** First and foremost, the effectiveness of teachers will be based on student performance. Some of this achievement data will be based on state standardized tests (e.g. End-of-Course tests), however this is not the final bar. Staff will work with teachers to develop benchmarks, with a requirement of at least two meetings per semester. This will provide data that will allow us to best support teachers in helping their students master content.
- **Teacher Performance Data:** Additionally, we will develop a rubric for effective instruction, analyzing areas such as planning, execution, investment, engagement, etc. This will help us break down for teachers what effective instruction looks like, and help them focus their individual professional development in the areas they most need to grow. This is based on Teach For America's 'Teaching as Leadership' rubric.⁶
- **Teacher Satisfaction/Opinion:** Lastly, we recognize that our master teachers come to the table with a plethora of experience, and we will rely on their leadership for their feedback, thoughts and suggestions related to staff professional development, and for mentoring Residents from outside RTHS as that program is developed.

By collecting data in these three areas, we can analyze the intersection of all three to do as much as possible to constantly improve our staff professional development, allowing the largest impact on students and their achievement. Additionally, two important criteria to be used for selection of teachers will be their desire to grow professionally, and their ability to think critically and reflect on their own practice. Without this, the work put into staff professional development will not yield the same growth we are expecting from all teachers.

⁶ <http://www.teachingasleadership.org/execute-effectively>

Research Triangle High School

Director of Professional Development/ Instructional Coach

To oversee all components of staff professional development, there will be a part-time position on staff called the Director of Professional Development. This person's role is to be an advocate for all teachers and their professional growth. They will oversee the development of PD Scope & Sequence, planning and execution of all PD sessions, observe classrooms in order to adjust PD needs and create new follow-up programs for improved teacher performance, and collect and lead analysis on all previously mentioned data. This position will be integral to the success of both the placement of in-service novice teachers and the management of the Teacher Residency program for early-career teachers joining the school from rural areas.

5. Provide parents and students with expanded choices in the types of educational opportunities that are available within the public school system [G.S. 115C-239.29A(5)].

- RTHS will be one of a handful of STEM-focused public high schools in the area. Making use of its connections to local Research Triangle park businesses and Triangle Universities, RTHS will offer experiential STEM opportunities like the CSC field studies for all students, include local STEM employees as Learning Team experts, and offer STEM internships, as well as build an experiential focus into regular content instruction.
- Students will be engaged in active, social, and creative learning experiences in and out of the classroom. "Active, social and creative learning" is the foundation of Constructivist education and will be implemented based on the experiences of the CSC and Raleigh Charter High School.

RTHS will be one of the first schools in the area to provide instruction to students in how to learn in a manner more reflective of a modern workplace. The Flipped model of instruction will offer a broad spectrum of students access to a wide variety of ways to learn – online and offline – blended together into a college and work-focused curriculum that will prepare them better than anything else for careers in the 21st century.

6. Hold the schools established under this part accountable for meeting measurable student achievement results and provide the schools with a method to change from rule-based to performance-based accountability systems [G.S. 115C-239.29A(5)].

RTHS will utilize the state adopted performance-based accountability system to ensure at least a year's growth in learning for all students as a minimum standard, with the goal to advance most students five years over their four years at RTHS. It is our intention to increase the percentage of students who meet or exceed the standards in core 9th grade EOC subjects. RTHS will continue to monitor the progress of the changing standards of measurement through the NC Accountability and Reform Effort (ACRE) in

Research Triangle High School

order to administer the smarter, balanced assessments currently being developed to show student mastery of content and growth. However, RTHS will also utilize multiple measures such as formative assessments to gauge student understanding before state testing schedules to help teachers adjust instruction in response to student learning needs.

In addition, the school will employ a pre-/post- assessment plan for all students each academic year so as to truly gauge individual student progress. In the event that the school offers Advanced Placement (AP) instruction those scores will be considered as indicators of college-preparation success. All students will be prepared for a college experience on the spectrum from local community colleges to highly selective universities.

Research Triangle High School

III.D. EDUCATIONAL FOCUS

Describe briefly, limited to one page, the focus of the proposed charter school. This description will be used in public releases of information to interested parties, such as: the media, the State Board of Education, parents, school systems, and in various documents produced by the Office of Charter Schools. It must be concise and relate directly to the mission of the school.

Research Triangle High School (RTHS) is an independent public charter high school with a Science, Technology, Engineering, and Math (STEM) focus, designed to bring a globally competitive education to a broad spectrum of students. The school is committed to enrolling students who reflect the Triangle region's diversity in ethnicity, socioeconomic status, rural vs. urban composition, gender and non-English-speaking origins. RTHS will be a place where students can learn in unique and innovative ways in order to prepare them for the global workplace of the 21st century. RTHS's education will offer college-preparatory course content built on the NC Common Core Curriculum and the *Framework for K-12 Science Education*. The school will rely upon cutting-edge instructional techniques that blend online material and industry-based experiences. Coursework will be Flipped so that students will learn from online lectures and material *outside* of class time, and learn from group labs, seminars and collaborative projects *during* class time. Teachers will have more opportunity to work closely with students while students will have greater opportunities to learn from instructional experiences that best match their learning styles, schedules, and needs. The school draws upon years of work at the Contemporary Science Center in Durham, a program that nurtures students' enthusiasm for careers in science and math, as well as improving their understanding of core competencies in their standard courses. RTHS will strive to provide Research Triangle industry internships and student science project work by leveraging the school's public and private support base in and around the Research Triangle Park community. The school will employ an extended day designed to provide more opportunities for instruction and help outside of class, as well as overcoming transportation barriers. Learning Teams of teachers, Resident teachers from across the state, industry experts and retirees will support students and key STEM learning objectives. Ultimately, RTHS is committed to scaling its innovative offerings to the greater North Carolina educational community through its model of blending virtual and experiential learning, Learning Teams, and a Residency program to achieve the school's mission of increasing access to a globally competitive STEM education for students and teachers across North Carolina.

Research Triangle High School

IV. GOVERNANCE

NOTE: Please answer all sections completely. Do not use “same as LEA” or “whatever the law states”. Lack of proper documentation will jeopardize the application review.

IV.A. PRIVATE NONPROFIT CORPORATION (G.S.115C-238.29E)

The nonprofit corporation must be officially authorized by the NC Secretary of State by the final approval interview date.

Name of Private Nonprofit: Contemporary Science Center, Inc.

Mailing Address: P.O. Box 13453

City/State/Zip: Research Triangle Park, NC 27709

Street Address: None

IV.B. TAX-EXEMPT STATUS (501 (c)(3)) (G.S.115C-238.29B(b)(3))

The private nonprofit listed as the responsible organization for the proposed charter school has 501(c)(3) status:

☒ Yes (copy of letter from federal government attached)

☐ No

Note:

The tax-exempt status must be obtained from the Internal Revenue Service within twenty-four (24) months of the date the Charter Application is given final approval. (G.S.115C-238.29E(b))

Research Triangle High School

IV.C. ORGANIZATIONAL STRUCTURE OF PRIVATE NONPROFIT (GS 115C-238.29B(b)(3); GS 115C-238.29E(d))

The private nonprofit corporation is the legal entity that has responsibility for all aspects of the proposed charter school. Its members should reflect the ability to operate a charter school from both business and education perspectives.

Please provide the following in this location of the APPLICATION: (Do not include as an appendices.)

1. A well-defined organizational chart showing the relationship of the Board of Directors to the administrative staff of the proposed charter school. This chart should also include lines of authority to and from any outside entity that will play a role in managing the charter school.

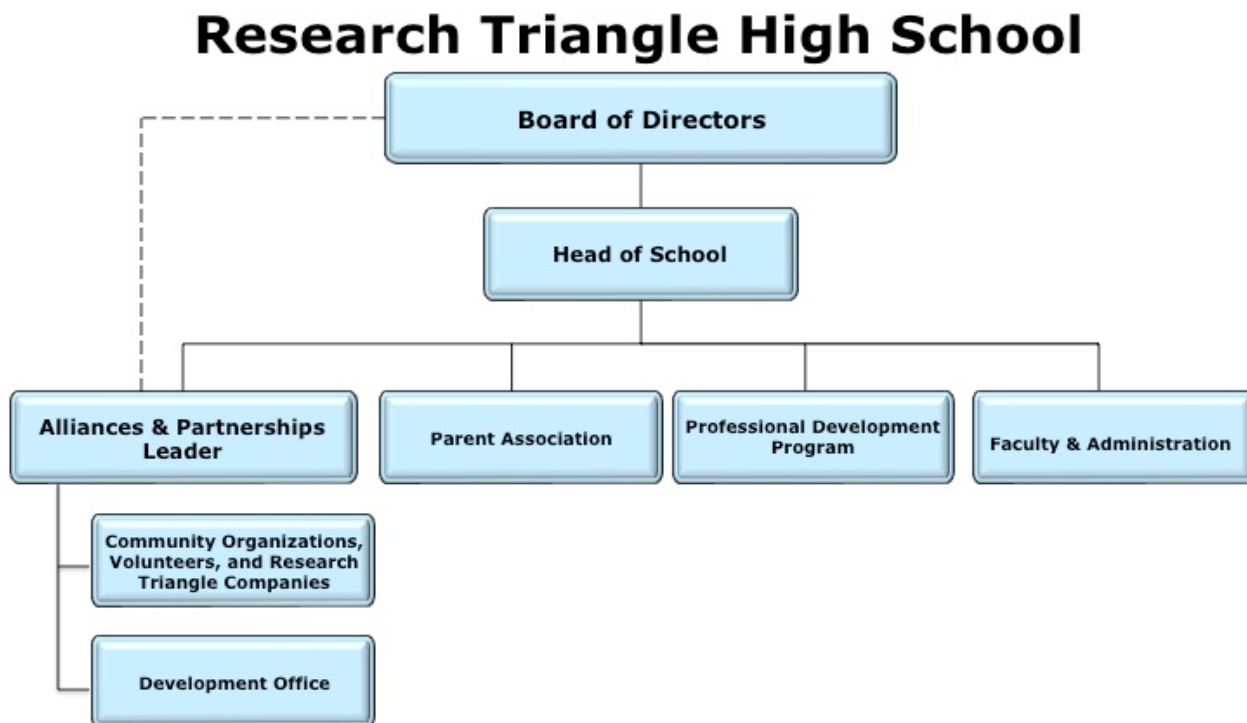


Figure 2. The non-profit corporate structure is represented by the top box and includes the Board of Directors and its officers and committees. The school structure is represented by all the other boxes.

Research Triangle High School

Explanations for Organizational Chart:

1. The RTHS will achieve its mission of 'increasing access to globally-competitive STEM education' for students and teachers across the state in two complementary ways. The school will have both an internal focus – offering an excellent education for the students physically enrolled at the school – and an external focus on incubating, proving and scaling its programs statewide.
2. The Head of School will be responsible primarily for the internal functions and success of the school, and the Alliances & Partnerships (A&P) Leader will focus on external relations with RTP companies, outlying school districts, and developing the broad constituency of support for the external focus. Therefore, the A&P Leader will have some dotted-line responsibility to the Board of Directors.
3. All programs and positions that support teachers will be the responsibility of the Head of School.
4. The Parents' Association is a school-based organization, not a committee of the Board, and is always encouraged to build its strongest ties to the Head of School and faculty, in order to support the school's mission and students' needs.

2. **A one-page resume for each member of the board of directors highlighting his or her experiences over the past ten or more years.**

RTHS Board of Directors Biographies

Pamela Blizzard, MBA

*Executive Director, Contemporary Science Center
P.O. Box 13453, Research Triangle Park, 27709*

Pamela founded the Contemporary Science Center (CSC) in 2002 and launched its programs in 2004, after two years of research and development. The CSC was founded to 'open the doors' to the resources of Research Triangle Park for teenagers from across the state and has served over 3,500 students since opening. Pamela led the founding team for Raleigh Charter High School, developing and implementing the educational and operational plans for the school, and has consulted with area charter schools since 2001. Raleigh Charter went on to become a nationally ranked college preparatory school, annually ranked in the top 25 schools in the US by US News and World Report. Pamela served on the NC e-Learning Commission from 2005 to 2006, and has served on the North Carolina Medical Board, which licenses and regulates the state's health providers, since 2007. Pamela's prior entrepreneurial ventures include launching and running a family business for five years in Richmond, VA, and creating a small advocacy organization for working mothers in the San Francisco Bay area. She worked for nine years in finance and marketing for Hewlett Packard in California. She received an MBA from the University of Santa Clara, and a BA from Brown University.

Research Triangle High School

Rich Cohn, Ph.D.

*Senior Principal and Director, Health Sciences Research, SRA International, Inc.
2605 Meridian Parkway
Durham, NC 27713*

Dr. Rich Cohn brings more than 25 years of experience as a statistical consultant to government, industry and academia to his role as Director of Health Sciences Research at SRA International. He oversees a center that includes leading health scientists and statisticians who conduct research and address critical needs in such fields as environmental health, respiratory health, and children's health. Dr. Cohn was also instrumental in establishing the Research Triangle Environmental Health Collaborative, a nonprofit established to leverage the combined capabilities of the region's government, commercial, and academic environmental health institutions, and to apply that expertise toward high-impact, cross-cutting issues in environmental health. He continues to serve on the Collaborative's Executive Committee. Prior to joining SRA, Dr. Cohn served a five-year term at the University of North Carolina's Collaborative Studies Coordinating Center within the School of Public Health. Scientifically, Dr. Cohn has been recognized for important statistical and methodological contributions and has published articles on environmental allergen exposures and asthma, air quality modeling methods, and laboratory performance assessment techniques. He has extensive experience in designing studies, designing and executing specialized data analyses, and disseminating results to the scientific community. Dr. Cohn holds an undergraduate degree in mathematics from the University of Virginia, a master's in statistics from Virginia Polytechnic Institute, and a doctorate in statistics from North Carolina State University.

Eric A. Grunden, M.Ed.

*Faculty, Science Department Chair, Raleigh Charter High School
1307 Glenwood Ave, Raleigh, NC*

Eric Grunden earned a B.S. in Chemistry and a M.Ed. in Secondary Science Education from the University of Florida, and began teaching at the P.K. Yonge Developmental Research School, the University of Florida's educational laboratory school. He taught chemistry and physics at Rockdale County High School in Conyers, GA before joining the faculty at Raleigh Charter High School in 2000, where he is the science department chair and teaches Chemistry, AP Chemistry, and Astronomy. He has been a board member of the Contemporary Science Center (CSC) since its inception and developed several of the field studies. In 2008 he served as Education Director at the CSC and has continued to consult and teach field study units. He has published several articles in practitioner journals and regularly presents at state and national conferences. In 2010 he was named by the Research Triangle Park chapter of Sigma Xi as Outstanding High School Science Teacher, and in 2011 was named a finalist for the Presidential Award for Excellence in Math and Science Teaching for North Carolina.

Research Triangle High School

Mike McBrierty, M.P.P.

*Manager, Public Affairs, Biogen Idec
5000 Davis Drive
Research Triangle Park, NC 27709-4627*

Mike McBrierty is Senior Manager, Public Affairs for Biogen Idec, a global biotechnology leader in the discovery and development of innovative therapies addressing multiple sclerosis (MS) and other neurodegenerative diseases. Mike is responsible for a range of public affairs activities for the company's Research Triangle Park (RTP) operations, including state and local government relations, community engagement, media relations and employee communications. As head of RTP public affairs, he also is a member of the local senior management team charged with ensuring strategic alignment of Biogen Idec's 900-employee RTP site.

Mike is known for facilitating partnerships between Biogen Idec and local stakeholder groups to foster an educational system aligned with biotechnology industry needs and a business climate that encourages innovation-based businesses to thrive. In 2009, Governor Perdue appointed him to the NC Board of Science and Technology. He serves on the steering committee of the Bioprocess Development Forum, the North Carolina Business Committee for Education (NCBCE), the Board of the Contemporary Science Center, Futures for Kids Business Advisory Council and the Durham Public Schools Superintendent's Business Advisory Committee, among others. Prior to joining Biogen Idec in 2007, Mike was Manager, Global Government Affairs for SAS Institute, the world's largest privately-held software corporation. He represented the company on a variety of legislative and policy initiatives with domestic and international issue portfolios. Mike also managed the company's relationship with government relations firms in multiple states and represented the company in trade organizations and coalitions. He began his career at the U.S. Chamber of Commerce as Program Coordinator for the Brazil-U.S. Business Council where he ran member services and programs. Mike earned a Master of Public Policy (MPP) from Duke University's Terry Sanford School of Public Policy and a B.A. *magna cum laude* in Latin American Studies and Political Science with honors from Texas A&M University. While at Duke, he was awarded a Foreign Language/Area Studies (FLAS) Fellowship.

Gerald R. (Jerry) McCrain, Ph.D.

*VP, District Director, PBS&J
1616 E. Millbrook Rd, Suite 310
Raleigh, NC 27609*

Dr. McCrain serves as Vice President and senior project director for Atkins' mid-Atlantic region. He has a background in wetland ecology, permitting, mitigation banking, environmental policy development, and watershed planning and management. He has 36 years of experience in the environmental field, including 21 years of progressive consulting experience. His current responsibilities also include assisting with policy development for the company as well as for state/institutional programs such as the

Research Triangle High School

North Carolina Ecosystem Enhancement Program (NCEEP), the NC Turnpike Authority, and NC Global TransPark; large-scale complex project management; business development; and public outreach/stakeholder involvement. In addition, he is responsible for providing direction and support to Atkins' nationwide mitigation banking program.

Jerry served as the principal of his own firm, EcoScience Corporation, for 10 years prior to merging with Atkins (formerly PBS&J). From 1990 – 1998 he was regional Vice President for Environmental Services, Inc., a Jacksonville, Florida-based environmental firm with responsibilities for building and developing a North Carolina office to provide ecological and natural resource consulting services. He was on the staff of NCDOT for six years (1983 - 1989) where he was responsible for environmental permitting (Section 404, 401 Water Quality Certification, Section 10, CAMA, US Coast Guard) and wetlands mitigation. He is a Certified Environmental Professional (CEP) through the Academy of Board Certified Environmental Professionals and a Professional Wetland Scientist. Dr. McCrain is currently Chairman of the Board for the Contemporary Science Center. He has the following degrees from North Carolina State University, a Ph.D. in Resource Management (Minor: Public Policy), a M.S. in Botany (Minor: Ecology) and a B.S., Botany

Karen Ondrick

*Program Director, Community Relations, Lenovo USA
1009 Think Place
Bldg One / 4G12
Morrisville, NC 27560*

Karen Ondrick is Program Director for Community Relations at Lenovo's executive headquarters in Morrisville, North Carolina. Her responsibilities include acting as Lenovo's single point of contact for North Carolina and coordinating community outreach through various Lenovo employee volunteer initiatives, including the management of the annual Lenovo Employees Care charitable contribution campaign. Karen joined IBM in 1981 in Connecticut and spent 12 years in management positions in Northeastern U.S. branch, region, and headquarters sites. After relocating to North Carolina in 1993 as IBM Sales & Distribution Operations Manager for the Southeast U.S. Customer Support Organization in Raleigh, Karen transferred to IBM's Personal Computing Division in 1996. Karen held various management and staff positions in the Americas PC Division and assumed her current role in Community Relations for Lenovo in 2006, after Lenovo's acquisition of IBM's global Personal Computing Division.

Research Triangle High School

Sharlini Sankaran, Ph.D.

*Assistant Director, NC Science and Technology Board
Department of Commerce, State of North Carolina
301 N. Wilmington St
1326 Mail Service Center
Raleigh, NC 27699-1326*

Dr. Sankaran is the Assistant Director and Research Manager for the North Carolina Board of Science & Technology. She currently manages the North Carolina Green Business Fund, a competitive grants program funded through the American Recovery and Reinvestment Act and administered by the Board of Science and Technology. She is lead organizer of the annual North Carolina Nanotechnology Commercialization Conference, a revenue- supported event now entering its fourth year. Her other duties include preparing reports and presentations related to science and tech- based economic and workforce development in North Carolina, tracking success metrics, including jobs created and funding leveraged, of the Board's two grant programs, and maintaining the Board's web and social media presence.

Dr. Sankaran's interests include science policy, technology transfer, workforce retraining, K-12 STEM education, and increasing female and minority participation in science and engineering. Prior to joining the Department of Commerce, she worked as a consultant for the Burroughs Wellcome Fund, evaluating the outcomes of their multidisciplinary Institutional Awards at the Scientific Interface. Her work was presented to a subcommittee of the National Academies of Science. She also taught fiber optics and computer science classes at Durham Technical Community College.

Dr. Sankaran has served as manager of education programs at Sigma Xi, the Scientific Research Society, a 60,000-member international honor society. Her duties included managing science, math, and engineering programs aimed at increasing diversity in science and engineering at all levels of education and the workforce. She helped coordinate a National Science Foundation summit: "Assuring a Globally Engaged Science and Engineering Workforce" which addressed education, research, and industry aspects of global engagement. Dr. Sankaran holds a Ph.D. degree in biomedical engineering from UNC-Chapel Hill, and M.S. and B.S. degrees in electrical and computer engineering from Ohio University, Athens, Ohio. She is a native of Malaysia and lives with her family in Durham, NC.

Craig A. Nygard, B.S.

*Senior Technical Staff Member, IBM Academy of Technology
B001 / F114
3039 Cornwallis Road
RTP, NC 27709*

Craig A. Nygard focuses on the innovative uses of technology for IBM's strategic outsourcing clients. He works with client teams to discover innovative value propositions for their clients. In that role, he works with the IBM-wide themes, such as

Research Triangle High School

Smarter Planet and Cloud Computing, to provide the client-focused thought leadership on the uses of technology to improve business performance. He presents frequently to internal and external audiences on these topics. Craig recently finished two four year terms leading the NC affiliate of the IBM Academy of Technology. Three workstreams resulted from that work in support of the NC Virtual Public School. Volunteer teams, under Craig's guidance, are presently developing a deeper approach to analytics and designing a more modern portal for NC Virtual Public School.

Craig joined IBM in 1978 with five years experience in two progressive corporations. Since then, Craig has held technical and management leadership positions in operating systems support, Technical Strategy, Business Strategy, Client Relations and the Strategic Outsourcing Executive Briefing Center as Manager and subject matter expert for managed operations and web facing systems. He was named as a Senior Technical Staff Member in May, 2000 and appointed to the IBM Academy of Technology in 2009. Craig has a B.S. degree from Drexel University in the Humanities and Social Sciences.

Darrell Allison, J.D.

*President, Parents for Educational Freedom in North Carolina
4900 Falls of Neuse Rd. Suite 155
Raleigh, NC 27609*

Darrell Allison is the President of Parents for Educational Freedom in North Carolina (PEFNC). PEFNC began in 2005, within a few short years, the organization's constituent base grew by 525 percent, with supporters numbering near 60,000 statewide. As the voice for parental school choice in North Carolina, Darrell Allison has played the crucial role of representing the interests of parents seeking more educational options for their children before legislators and other decision makers.

Within the past few years, PEFNC has made expanded school choice known to hundreds of thousands across North Carolina through multiple town hall forums, legislative charter school visits where state lawmakers toured charter schools in their districts, and recently, statewide screenings of *Waiting for 'Superman'* where more than 3,000 people viewed and discussed the groundbreaking documentary. PEFNC's efforts have led to legislative leaders like Sen. Malcolm Graham (D), who represents North Carolina's most populous county, publically attributing their shift to supporting parental school choice to Darrell and his organization. They have also lead to the elimination of North Carolina's public charter school cap thanks to overwhelming legislative support and Gov. Beverly Perdue's signature.

Cultivating support was nothing new for Darrell. As a national coalition co-director key government liaison for White House officials and congressional leaders on Capitol Hill, Darrell led a successful grassroots lobbying effort in the House of Representatives that resulted in the passage of HB 7 Community Solutions Act. His public policy experiences also include working as a legal specialist for the U.S. Department of Justice, Civil Rights Division. Under Darrell's leadership, PEFNC has become a 'do-tank.' In 2010, the non-

Research Triangle High School

profit was the first to announce that North Carolina did not make the cut in the first round of federal Race to the Top funding. PEFNC has remained newsworthy thanks to its community and legislative endeavors regarding a number of parental school choice measures, including efforts to remove the state's charter school cap, which has led to over 260 media mentions within the last two years. A Tar Heel native, Darrell is a former White House intern who graduated magna cum laude from North Carolina Central University and received his juris doctor from the University of North Carolina at Chapel Hill School of Law.

Melissa Thibault, Ph.D. Candidate

*Vice Chancellor for Distance Education and Extended Programs, NCSSM
P.O. Box 2418, Durham, NC 27715*

Melissa Thibault is the Vice Chancellor for Distance Education and Extended Programs [DEEP], leading North Carolina School of Science and Math's (NCSSM) efforts in online learning, delivery of instruction using interactive video conferencing, teacher professional development, and student enrichment programs, including the state-wide Summer Ventures in Math and Science pre-college program. In this role, Melissa leverages the contributions of NCSSM faculty and staff, develops partnerships with other education service providers, and works to realize the School's potential in leading North Carolina in the development of STEM curriculum and instruction. Her work is focused on the second half of the School's dual mission: improving science and math education statewide.

As an education leader in North Carolina, Melissa engages with both policy and outreach, looking for innovative solutions that can be applied to all North Carolina communities. Her current leadership activities include serving as a member of the Collaborative Services Working Group at MCNC, the eLearningNC portal steering committee (representing professional development), and the North Carolina eLearning Commission, as well as an advisory board member for the North Carolina Virtual Public School. She has also led efforts to create collaborations across K-12, community college, and university partners that would yield online content to be freely shared with any student in the state.

Before coming to NCSSM, Melissa was the executive director at LEARN NC, a teacher outreach program at UNC Chapel Hill. Prior to that, Melissa was a Media Coordinator at W. G. Enloe Gifted and Talented International Baccalaureate High School in Raleigh, N.C. As a librarian, she has worked in university, public and school libraries, as well as literacy programs. She holds a Masters degree in Library and Information Science from the University of South Florida, and a Bachelor of Arts degree in Economics from Colby College. A graduate of the Public School Forum's Education Policy Fellowship Program, she is currently a Ph.D. candidate in Public Administration at North Carolina State University, studying educational policy and public management, including teacher retention and teacher development in North Carolina

Research Triangle High School

Martinette Horner, MSA

*P-12 Distinguished Educator in the School of Education, UNC-Chapel Hill
219A Peabody Hall, CB 3500
Chapel Hill, NC 27599*

Martinette Horner began her career as a regular classroom teacher in 1996 after graduating from the University of North Carolina at Chapel Hill as a NC Teaching Fellow with a bachelor's degree in elementary education. During her time in the classroom, Horner also achieved the distinction of National Board Certified Teacher as a Middle Childhood Generalist. Horner taught third and fourth grades for eight years before returning to the University of North Carolina at Greensboro as a NC Principal Fellow, earning a Master of School Administration degree. During this time she also served as a district mentor for beginning teachers and supported students in a Title I school as a literacy tutor. After four years as a school administrator, Horner returned to the University of North Carolina at Chapel Hill as the first P-12 Distinguished Educator in the School of Education. In this capacity, Horner coordinates the Elementary Education program and directs the school's outreach initiative, Research Triangle Schools Partnership.

John Kerr, B.S.

*President, York Commercial
801 Oberlin Road, Raleigh, NC 27605*

John is a veteran Triangle commercial real estate broker who has been affiliated with York Properties since 1988. He graduated from the University of North Carolina at Chapel Hill in 1984 with a degree in Political Science. Licensed since 1985, John was an early member of the York team, which began with the addition of a third party brokerage company in 1983. After over 20 years in the business, John is proud of his accomplishments representing both buyers and sellers, landlords and tenants, while being on the front line of the Triangle region's transition from a third tier to a second tier commercial real estate market, and one of the fastest growing regions in the country.

Recently, John has begun to become more involved in management and strategic planning at York Properties and in 2011 was named President of the Commercial Division of York Properties. He will, however, continue be an active broker in terms of his primary responsibilities and daily activities.

Community involvement is a hallmark of being an employee of York Properties, and John has stayed active in a variety of community activities. He is currently on the Board of Advisors for The Central YMCA, the Board of Directors for The Contemporary Science Center and the Board of Directors for the Council for Entrepreneurial Development (CED). He is also involved with fundraising for The Boys and Girls Club of Wake County.

Research Triangle High School

3. A description of the governing board's functions, duties, roles and responsibilities as it relates to overseeing the charter school and its mission.

The CSC non-profit board is very impressed with the work of Marci Cornell-Feist at Reach the High Bar, Boston, MA, who presented at a workshop in January 2011 with Joel Medley from the DPI Office of Charter Schools. Marci led the establishment of some 50 charter school boards in post-Katrina New Orleans, and is one of a handful of national experts on charter school governance. Since that time, the CSC has been methodically adopting her materials as guidance for board governance, beginning with her descriptions of Board roles and responsibilities, and adopting her recommended Board recruitment process, as the CSC expands from a non-profit board to a founding school board. The RTHS has now adopted Reach the High Bar's Board Meetings: A Guide for Charter Schools, and strongly subscribes to her recommendations, including this description of board functions.

The Governing Board will be responsible for ensuring that the academic program of RTHS is successful, that the school's program and operation are faithful to the terms of its charter, and that the school is a viable organization. The Governing Board has been formed over the past year to be comprised of community leaders, many of whom are parents of young children. The Board will create and periodically review the mission statement, which will serve to guide the organization, board and staff decision-making, volunteer initiatives and setting priorities. The Board is organized such that the school program leadership and the parent community have direct and indirect input into the governance of the school. The Board will assess program activities to ensure that RTHS is not drifting away from its original purposes to ensure all students are achieving at the highest levels. The Board is responsible for selecting the school leader (Head of School) and for continued support and review of his/her performance.

The Board will ensure effective organizational planning such that it includes concrete, measurable goals consistent with the charter and accountability plan. The Board will ensure adequate resources by supporting and approving fundraising targets and goals and carrying out the development plan. This will include the management of resources effectively by approving the annual budget, reviewing financial reports, approving accounting and personnel policies, provide for an independent annual audit by a qualified CPA, ensure adequate insurance is in force to cover students, staff, visitors, the Board and the assets of the school. The Board will determine, monitor, and strengthen school programs and services so that they are consistent with the mission and charter. This will include approving of measurable organizational outcomes, approving annual, attainable Board and management level goals. The Governing Board will also enhance RTHS's public standing by serving as ambassadors, advocates, and community representatives of the school. The Board must also ensure that no Board member represents her/himself as speaking on behalf of the Board unless specifically authorized to do so. The Board will provide for a written annual report and public presentation that details RTHS mission, programs, financial condition and progress made towards charter promises. The Board must ensure legal and ethical integrity and maintain accountability by establishing policies to guide the school's Board members

Research Triangle High School

and staff and develop adequate personnel policies and procedures. The Board must adhere to the provisions of the school's bylaws and articles of incorporation, which will include adhering to local, state and federal laws and regulations that apply to the school. The Board must also recruit and orient new Board members, which includes defining Board membership needs in terms of skills, experience and diversity.

4. Explain the decision-making processes the Board will use to develop school policies.

The RTHS governing Board attends carefully to the boundaries between school management and Board governance. School policies, which are core to the daily running of the school, are established first by Board-level discussion, with a small team of Board members and the school leader assigned to draft new policies as needed. This draft is reviewed by the Board secretary, attorney(s) on the Board, and outside counsel if needed. New policies are extensively reviewed by the school leader to ensure they fit in with that leader's implementable vision and operations for the school. The back-and-forth review between Board policy team and the school leadership are key to the successful governance and management of the school, with the Board ensuring core values and principles of the vision of the school are articulated, and the school leadership ensuring policies would be operationalized and have the impact that the Board envisions. All final policies are reviewed by the full Board and voted upon by the full Board.

7. Describe the organization's performance-based goals for the charter school. Organizational goals and measurable objectives should describe and measure the effectiveness and viability of the organization.

The RTHS will have a two-tiered self-assessment of the school's performance on its key goals.

Initial assessment each year will be on the students' measurable achievement on the 9th grade EOC's in Algebra 1, Biology and English. The school's goal will be for at least 85% of the 9th graders to achieve a high level III proficiency on these tests. By comparison, proficiency rates for county 9th grade Algebra students range from 46.54% in Durham or 54.56% in Granville, to 64.78% in Chatham, 77.59% in Orange and 82.16% for Wake. At the same time, an important goal of the school will be that students achieve more than four years of growth in their learning over their four years in high school. In order to assess whether student's learning has been so accelerated, we may employ software such as the Education Value-Added Assessment System (EVAAS) to track student achievement.

Equally important, the Board will evaluate the school's success on its longer-term goals of increasing access to globally competitive STEM education for students and faculty at the school, *and for those beyond*. A key goal of RTHS is to develop greater numbers of

Research Triangle High School

teens prepared to pursue globally competitive careers in STEM industries, from technician to scientist-level work, scaling what is done at the school to other teachers and other schools.

To that end, we have been working with Karl Rectanus and the NC STEM Collaborative for over a year now, closely following their work on STEM engagement and statewide development. We have contributed to the definition of the Collaborative Score Card for STEM schools and program, and have reviewed the proposed STEM attributes. NC STEM Collaborative has advised us on their work in defining a statewide STEM strategy, to hopefully be adopted by the State Board of Education this year. As the state finalizes the definition of the STEM attributes for schools and programs, we fully plan to meet and exceed the majority of those attributes. NC STEM has also been a generous behind-the-scene advisor to the RTHS, and will continue to serve us in its role as a connector to out-of-state peers and partners. It is through their connections that RTHS intends to visit several national models of STEM schools this fall, including School of One in New York City, MC² in Cleveland, and High Tech High's Graduate School of Education in San Diego. We would like to build on NC STEM's work in defining ways and developing tools for assessing the following areas:

- a. A growing pool of rural & local district teachers learn, incorporate, adopt and spread these new RTHS tools into their schools, spreading both the techniques and contemporary science into classrooms statewide, yielding:
 - i. Increased retention of teachers due to increased professional effectiveness
 - ii. Increased student engagement & graduation
 - iii. Increased student enrollment & achievement in STEM classes
 - iv. Student transition to community college STEM programs
 - v. Student 4-year college major choices

8. Describe how the governing board will ensure that current and future board members avoid conflicts of interest.

The CSC has had a Conflict of Interest policy for many years, and each June at its annual meeting all current and new Board members are required to attest to and sign this policy. As the CSC has moved towards a state-funded, public charter school, it has been expanding its conflict of interest policy to more closely reflect the spirit of the law in the State Ethics requirements. These expansions are regularly added to the Conflict of Interest policy, reflected in the Board minutes, and newly attested by the full Board by affirmation during the meetings. This conflict of interest policy is in the RTHS By-Laws and can be read above.

Research Triangle High School

IV.D. PROPOSED EDUCATIONAL MANAGEMENT ORGANIZATION (EMO OR CSO)

If the Charter School plans to contract for services with an “educational management organization” or “charter support organization,” please specify the name of the company, address, phone number, contact person, fax, and email:

Research Triangle High School (RTHS) does **not** plan to contract for services with an Educational Management Organization.

IV.E. ADMISSIONS POLICY (G.S.115C-238.29B(b)(4); G.S. 115C-238.29F(d)(1))

Provide a description of the policies and the procedures for admitting students to the proposed charter school, including specific details of the enrollment lottery plan.

At RTHS, any child who is qualified under the laws of the State for admission to a public school is qualified for admission to a charter school. As per Charter Law, RTHS shall not discriminate against any student on the basis of ethnicity, national origin, gender, sexual orientation or disability. Except as otherwise provided by law or the mission of the school as set out in the charter, the school shall not limit admission to students on the basis of intellectual ability, measures of achievement or aptitude, athletic ability, disability, race, creed, gender, sexual orientation, national origin, religion, or ancestry. Notwithstanding any law to the contrary, RTHS may refuse admission to any student who has been expelled or suspended from a public school under G.S. 115C-391 until the period of suspension or expulsion has expired.

The school will open the application submission window, based upon final SBE approval of the charter, on or about February 4, 2012 and will close applications on March 15, 2012, holding an open, public lottery on that date if needed. Notices of the application period will be published, posted and advertised as per NCGS 143-318.12. The lottery will be conducted in a public forum. At this time, the school's goal is to limit the class size to 20-22 students in each section of each grade.

Each student must complete an application to be placed in the admissions lottery. The application packet will consist of, but may not be limited to, the following items: a personal application form that gives name, address of residence, parent's name and address, birthday, present school, grade attending, and math recommendation. A math placement form indicating the student's recommended math placement will be part of the application form. This recommendation should indicate placement into Algebra I with interventions needed for completion of that course by the end of 9th grade, into Algebra I without anticipated interventions, or into a higher level math course, signed by the current math teacher.

Research Triangle High School

Process for Admission:

1. Completion and submission of student application form by parent or legal guardian by due date
2. Applications will be reviewed for completeness. Lottery cards will be assigned to each applicant.
3. The timing of the lottery will be aligned with other area charter, magnet, and private school application dates. The lottery will be conducted by a Research Triangle volunteer unaffiliated with the school or board. Applicants will receive confirmation of being in the lottery, the date, time and place. All lottery names will be placed in a large container and the volunteer(s) will draw cards from the container. This will be a public lottery and openings will be filled in each grade and class in the order drawn.
4. A numbered waiting list for each grade level may be established to fill slots that become available at a later date during the academic year. In the opening year, 160 student seats will be available in the 9th grade. A new 9th grade will open in 2013 with 105 seats. Each year thereafter, one grade level will be added with 105 seats per grade, until the school reaches full enrollment at 420 students.

Children of current faculty members are exempt from the lottery, provided their number does not exceed the number of available seats in a given grade. Children of the Board of Directors are exempt from the lottery in the opening year only, so long as (i) these children are limited to no more than ten percent (10%) of the school's total enrollment or to 20 students, whichever is less, and (ii) the charter school is not a former public or private school. If multiple birth siblings apply for admission RTHS and a lottery is needed under G.S. 115C-238.29F(g)(6), RTHS shall enter one surname into the lottery to represent all of the multiple birth siblings. If that surname of the multiple birth siblings is selected, then all of the multiple birth siblings shall be admitted.

Process for withdrawals or transfers:

Students/families requesting transfer to another educational institution, for reasons of discipline or personal preference, will be processed immediately upon written request to the School Leader, and records will be sent by the Office Manager to the transferring institution as soon as possible and/or within 48 hours.

Evaluation of enrolled population:

Each year in the fall the School Leader will present to the Board the diversity and socioeconomic status statistics for the newly enrolled school population. Based on that information, the Board and school leadership will modify the plans for school marketing communications and recruitment events and plans for the coming winter. These efforts will ensure all ethnic groups are provided the same opportunity for school enrollment.

Research Triangle High School

V. EDUCATION PLAN

NOTE: Answer all sections completely, include your answers in this section of the application, do not include as an appendices. Do not use “same as LEA” or “whatever the law says”. The State Board of Education shall give priority consideration to the applicants who demonstrate potential for significant, meaningful innovation in education. Give explanations. Lack of proper documentation will jeopardize the application review.

V.A. INSTRUCTIONAL PROGRAM (G.S. 115C-238.29F (d))

Provide a detailed description of the overall instructional program, including the following:

1. Educational theory, foundation of the model, and proposed innovative offerings.

RTHS educational foundation is in constructivism. Constructivist theory accesses students' prior knowledge and uses techniques like inquiry instruction to develop concepts.⁷

Traditional Classroom	Constructivist Classroom
Curriculum begins with the parts of the whole. Emphasizes basic skills.	Curriculum emphasizes big concepts, beginning with the whole and expanding to include the parts.
Strict adherence to fixed curriculum is highly valued.	Pursuit of student questions and interests is valued.
Materials are primarily textbooks and workbooks.	Materials include primary sources of material and manipulative materials.
Learning is based on repetition.	Learning is interactive, building on what the student already knows.
Teachers disseminate information to students; students are recipients of knowledge.	Teachers have a dialogue with students, helping students construct their own knowledge.
Teacher's role is directive, rooted in authority.	Teacher's role is interactive, rooted in negotiation.
Assessment is through testing, correct answers.	Assessment includes student works, observations, and points of view, as well as tests. Process is as important as product.
Knowledge is seen as inert.	Knowledge is seen as dynamic, ever changing with our experiences.
Students work primarily alone.	Students work primarily in groups.

Table 1. Comparison of objectives of traditional classroom and a constructivist classroom⁸

⁷ Brooks, J. and Brooks, M. (1993). *In Search of Understanding: The Case for Constructivist Classrooms*, ASCD

Research Triangle High School

It is clear from **Table 1** that these types of classroom activities address higher-order thinking skills, which are critical to future functioning of critical consumers of information. Furthermore, small groups are conducive to inquiry-based instruction and facilitate many of the 21st century workplace skills demanded by the future marketplace. We also know from more than ten years' experience at Raleigh Charter High School that the active/social/creative constructivist model is effective at engaging students, and we intend to build on this model in developing our instructional plan for a broad spectrum of students.

A critical element of the school's educational philosophy is metacognition, teaching students how to own their own learning. This includes, among other topics, recognizing the extent to which one is educated ("what do I know and how well do I know it?"), what topics one finds engaging, and what style of instruction or presentation one finds most effective. We recognize that a student population that cuts across the distribution of achievement levels we see in NC schools likely has a mixed command of these skills and will need different levels of training and practice in developing them. To this end the school will emphasize the individual teacher/student contact needed to determine the level of instruction required. This requires building a model of the type of learner the student is. We view this model as a mix of several useful existing models of learning and intelligence, including Gardner's Theory on Multiple Intelligences (MI) and Kolb's Experiential Learning Model.^{9, 10} Kolb's model references nine distinct experiential attitudes, all of which indicate where a student is most comfortable in an experiential activity. It makes little sense to put a student with low abstraction abilities into a strongly abstract activity. It is the goal of the teaching staff both to match learning experiences with the student's strengths so as to provide an efficacious learning experience as well as to help develop the skills a student lacks. We seek to push the student along the concrete-abstract continuum, as a challenge to the student and a way of facilitating intellectual growth. Likewise, we would suggest to a student who is choosing from content instruction options experiences that best match his or her indicated strengths. For example, if the student were strongly logico-mathematical, as per Gardner's MI theory, a teacher would advise him to choose content selections that matched that. We cannot make these suggestions without knowing the student, and so necessarily we would need multiple assessments to identify the student's learning characteristics. We also recognize that these change as the student learns and grows, and so repeated measures would be needed. Students will be assessed at their entry to the school, and multiple times throughout their career at the school, to determine various components of their learning styles. There are a number of commercially available tools available that faculty will choose from to build a "learning personality" for each student that addresses the cognitive and experiential components of the student's learning modality. This information will be readily available to any teachers to help in diagnosing learning/content mismatches.

⁸ http://www.thirteen.org/edonline/concept2class/constructivism/index_sub1.html

⁹ Gardner, Howard. (1983) "Frames of Mind: The Theory of Multiple Intelligences." New York: Basic Books.

¹⁰ Kolb, D. A. & Fry, R. (1975) Toward an applied theory of experiential learning. In C. Cooper (Ed.) *Theories of Group Process*, London: John Wiley.

Research Triangle High School

The innovative offerings of the school are all chosen to address our goals of both accelerating learning for a broader spectrum of students and differentiating learning for each of those students.

- A blended instructional model (blending virtual and experiential learning) has been chosen as the way to reach more students with more material more often. The Flipped model will increase our ability to achieve this ‘blending’ and increase our ability to work closely with students. These two aspects of the same method are the tools that will allow us to differentiate both student learning and teacher instruction.
- The construction of the school day also affects learners and has been considered as a part of our model. First, the longer school day will allow for students to engage more often in contact with content and instruction, leading to greater mastery and higher retention.¹¹ Keeping the core of student classes between 10am and 3 pm also addresses research showing these are peak times for teaching.¹² A long-format school day with extra periods built in so that students have time for practice and additional content exposure during the school day. Students would attend a number of regular classes and would use the additional time for study halls, individual review and practice, teacher office hours, research or work, including internships on or off campus.

2. Teaching approach, class structure, curriculum design, and instructional methodology, courses of study, etc.

RTHS believes that the foundation of any educational enterprise is the relationship between teacher and student. Current educational models are based on assumed student to teacher ratios in excess of 10:1. We believe that this constraint limits the effectiveness of teachers in two principal ways. First, it assumes that a teacher will deliver one instructional experience to a group of students who vary in background, ability, and learning style, thereby ignoring, at best, or negating, at worst, those differences, and preventing the teacher from diagnosing and addressing them. Second, it prevents students from being able to choose an instructional experience that best addresses their interests and abilities. Thus, the RTHS instructional model has three components: differentiated instruction, differentiated learning, and the Flipped Classroom model.

The core innovation in the RTHS instructional model is what has become known as Flipping. In short, this model reverses the typical in-class and out-of-class activities. Students view content presentations outside of class, for “homework,” and then during class time they are engaged in some activity in the presence of the teacher. This affords greater teacher/student contact time and facilitates differentiation. First, in-class time is

¹¹ ECONorthwest (August 2008). *A Review of Research on Extended Learning Time in K-12 Schools*.

¹² Changing Times: Findings from the First Longitudinal Study fo Later High School Start Times. K. Wahlstrom. *NASSP Bulletin*, v86 n633 p3-21 2002.

Research Triangle High School

now the domain of skill practice and content mastery, as opposed to first-time exposure. The teacher can divide the class into small groups for peer instruction, can work with individual students, can allow students who have mastered the current content to engage in supplemental activities, or any number of other time-shifting and format-varying ways that will keep students engaged over a typical expectation of going to class each day and sitting and listening to content being presented. Teachers will have more time to work with students individually and diagnose their own learning issues for direct remedy, rather than trying to implement a group solution. Reliable analytics developed from this increased contact time will be used to determine student progress and adapt a student's instructional plan to increase effectiveness. An additional advantage of the Flipped model is that it increases chances for students to interact with each other. An offshoot of constructivism that has been successfully practiced at Raleigh Charter High School is the Active/Social/Creative model, where these three virtues are foundational to learning. Students should be engaged in active lessons that require social interaction with peers as well as stakeholders in the lesson, and those lessons should both encourage and require student creativity. By emphasizing a classroom environment which is fundamentally social and active, rather than quiet and passive, we are building students better capable of managing the demands of the 21st century marketplace.

Differentiation can be achieved from either the teacher side or student side, leading us to consider both *learning* and *instruction* as two separated differentiable aspects. Differentiated learning provides flexibility on the student side, which leads to meeting student needs directly.

Student content instruction will be provided through a blend of traditional direct instruction and modern technological resources. Students will access "playlists" of content instruction and practice, which could include videocasts of classroom lessons, teacher-produced videos, open source materials such as MIT's OpenCourseWare or any of the burgeoning collection of digital presentations created by practitioners outside the school, as well as collaborative asynchronous media such as wikis or discussion groups facilitated through social media outlets. Students will be expected, eventually, to learn to make appropriate choices for meeting their instructional needs, though we expect this is a skill to be learned and early in a student's career his or her choices will be somewhat directed by their teacher, depending on student need. A principal instructional goal of the school is to teach students to be able to recognize their own learning needs, including their own content deficiencies as well as what instructional methods or media best meet their learning needs. Playlists will help to accommodate students to the panoply of content available in the 21st century and help to make them more critical consumers of information.

The greatest asset of digital asynchronous content is its constant availability. Student learning will not be limited by time of day or location in the universe. Our students will have a traditional schedule of classes to attend, but their teachers and teacher resources will be available outside of class in several ways. First, school time is extended. We intend to operate from 8am to 6pm. During that period students will be

Research Triangle High School

scheduled to attend certain classes at certain times. However, they will be afforded several time periods with no formal instruction. Those times could be filled in a formal study hall, with a teacher advisor available for help; “office hours” with one of their own teachers, in other informal social or study environments, such as a central school “coffee house” or Café, working off-site at an internship or working on-site on an extended science research project, or even attending a teacher’s class for the second time in a day, for another chance at receiving that information. All of these times are intended for practice or content reinforcement. Low-achieving students are often faced with the prospect of having to master more than one year of content in a traditional year to overcome those deficits; strong research supports augmenting the school year to provide more instructional time.¹³ In this way we are allowing the student to tailor that time to his or her need. Second, the school *space* is extended. Digital content can be accessed via Internet or cellular network; tools for accessing that content include traditional computers but now also personal digital devices such as smartphones, tablets, and videogame consoles, many of which are already comfortably in students’ hands with no additional learning curve for implementing them. By making instructional content available in multiple formats on dedicated school computers, students can access that content anywhere on campus. They could also connect to the school from home or download content to personal electronics for viewing on the ride home. Learning can occur anywhere, as it already does in the adult working world for which we intend to prepare these young people. We need to develop in our students the idea that learning is a necessary daily tool for existence, not just something we do at school for school purposes. In addition, that content can be repeatedly and selectively viewed, helping students learn to access what is really important for their own learning needs.

Blending experiential learning with virtual content is critical to the instructional model at RTHS because of its ability to reach a broader spectrum of students and to be scalable to other schools throughout the state. CSC has pioneered experiential lessons in its Field Study model, which have been experienced by thousands of students across NC for more than seven years. These lessons pair rigorous science and mathematical content with current product development done by local companies, providing a context and a narrative for the science content. These lessons not only teach course content in a novel way but also access the affective component of learning, giving students a truer experience of the way science is done. This school intends to push past what has been done before at the CSC and determine how porous the wall can be between the school and the surrounding research park. The seven-years’ experience of CSC will inform the teachers’ plans to include authentic experiences and inquiry-based problem-solving lessons into regular experiential learning. Another mode is the “flex day” concept wherein traditional classes are suspended in favor of longer-format interdisciplinary lessons often involving field trips or other work in informal settings. The “flex day” mode has been successfully implemented to the benefit of thousands of students at Raleigh Charter High School since 1999, and is considered foundational to that school’s ability to develop independent critical-thinkers. RTHS seeks to expand upon the “flex day” model and also develop student intern opportunities through its industrial and academic partners. It is not sufficient to expose students to informal settings occasionally; this

¹³ <http://www.chalkboardproject.org/images/PDF/Extended%20Learning%20final%20rev.pdf>

Research Triangle High School

must be woven into the fabric of the school's instructional calendar and made to be a priority for teachers and students.

RTHS' content instruction is founded on the NC Common Core and the *Framework for K-12 Science Education*. We expect that both teachers and students will challenge the limits of both of these structures. However, within those structures, owing to the differentiated nature of instruction, we expect a need for cooperation among the faculty and will endeavor to support that in whatever capacity is necessary. By concentrating on the needs of individual students and employing a somewhat freer daily schedule, the school will be able to facilitate student movement among classes and teachers. It is our intention to *expand upon and enhance* the required state and national curricula of Common Core and the *Framework*. These efforts will be on-going, led by the department chairs and the Professional Development Coordinator, included in the work of the Learning Teams, and incorporated into the regular content professional development Scope and Sequence activities.

A critical tool that RTHS will use to facilitate differentiation and development of its Flipped methods will be Learning Teams, as designed and developed by the National Commission on Teaching and America's Future (NCTAF). The research and programs of NCTAF will inform the design and running of our Learning Teams. NCTAF was founded in 1994 by NC Gov. Jim Hunt and Linda Darling-Hammond at Teacher's College/Columbia University. Its mission is to set the national agenda on teaching quality. NCTAF works in four areas:

- Analysis: NCTAF conducts research and synthesizes findings
- Advocacy: NCTAF convenes policy forums, hosts national summits and issues policy papers
- Action: NCTAF creates demonstration sites
- Alliances: NCTAF partners with coalitions

NCTAF will work with RTHS to organize, structure, assess and guide the success of Learning Teams, which will include master teacher, novice teacher, scientist, parent, retiree – and student – STEM volunteers in order to design new ways to attack key learning objectives in core science and math courses.¹⁴ This effort will be coordinated by the Professional Development Coordinator and led by the School Leader. We expect the Learning Teams to have quarterly learning objectives which they will target. NCTAF will also lead the annual review of these efforts each June. Research Triangle Foundation, owner of Research Triangle Park, will help in the communication to and recruitment of these Triangle STEM volunteers.

The PD at the school will have a scope and sequence outlining objectives and end goals for the PD program. The Learning Teams model will be used to provide a meaningful professional development experience for our teachers, and encourage retention, expanding upon their PD needs to make logical sense as they transition between topics, covering everything from team development to instructional skills.

¹⁴ http://www.nctaf.org/resources/demonstration_projects/documents/LearningStudiosProjectBrief.pdf

Research Triangle High School

Additionally, teachers will be held accountable for acting on PD focuses for the year in order to allow them to build onto each. Therefore the scope and sequence of professional development will be focused both on classroom instruction for all as well as effective teacher coaching/mentoring for the master teachers.

NCTAF will also help us incorporate novice teachers, such as those graduating from UNC-Chapel Hill's BEST program, into RTHS Learning Teams as a way to increase those new teachers' long-term retention. These initial learning teams will then evolve into the RTHS long-term residency program, described below.

RTHS is committed to scaling its innovative offerings, and intends to use both its Flipped online content and a Residency program for rural and novice teachers as ways to scale those innovations to other schools across the state. The online course content will be developed in partnership with the NC School of Science and Math, making use of their distance learning experience and their staff experts in digital development. We also have long talked with a local digital development company, Aten Inc., and may include them in this process. All RTHS developments will be shared through a statewide Learning Object Repository and/or inclusion in forthcoming course development work at the NC Virtual Public School, as a way to ensure open source availability of all that is developed.

The residency program will evolve over the course of the first five years of RTHS from initial placements for new teachers, to inclusion of in-service teachers in our Learning Teams and culminate, as our expertise and partnerships with NCTAF and UNC-Chapel Hill mature, into a full residency program for early-career teachers, preferably from rural districts. Residents will be able to learn RTHS methods in-team and in-practice, and return reinvigorated to their home schools with new expertise and with our online course content in hand. Resident teachers will be able to maintain their membership in our Learning Teams, after returning home, through participation in a program like the eMSS e-mentoring system, developed at University of California, Santa Cruz.¹⁵

We are mindful that citizens of the 21st century live in a global 'flat' world, and the liberal arts prepare us better than anything else to be thoughtful, open thinkers. It is our intention to ensure that students with broad literary and artistic interests can also attend and take advantage of this school, even if their only goal is to graduate as more scientifically literate citizens, rather than as future scientists. The school will offer a full complement of liberal and performing arts courses. Choral, musical instrument, visual arts and assorted department electives will all be offered and are budgeted in the headcount of teachers needed. An athletics program is also planned with a funded full-time director and expenses to support that program at 1.5% of the annual budget.

The information technology requirements of this program development are very important, and will hopefully be supported by Research Triangle Park companies like IBM, which have expressed interest in developing and establishing the necessary infrastructure for this school. It is our intention to rely on a device-independent 'image'

¹⁵ <http://www.newteachercenter.org/eMSS/menu.php?p=home>

Research Triangle High School

platform which will allow students to access the school's online content through any device, which they either already own or are provided (Smartphones, Blackberrys, laptops), and have consistent content across all devices. This 'image' platform is available through both local state agencies (NCSU, WakeTech, MCNC) and commercial vendors. At the same time, we intend to ensure the school is a 'One-to-One' school, so any student who enrolls without an internet-access device like a Smartphone or laptop will be provided one. Pre-opening fundraising to support this all-student access is underway through the Contemporary Science Center already.

Craig Nygard, RTHS Board member and member of the IBM Academy of Technology, has led work for the NC Virtual Public School and is leading this definition of systems requirements for RTHS. Mr. Nygard will coordinate RTP resources as instructional plans are developed. This plan is drafted here in the following flowcharts:

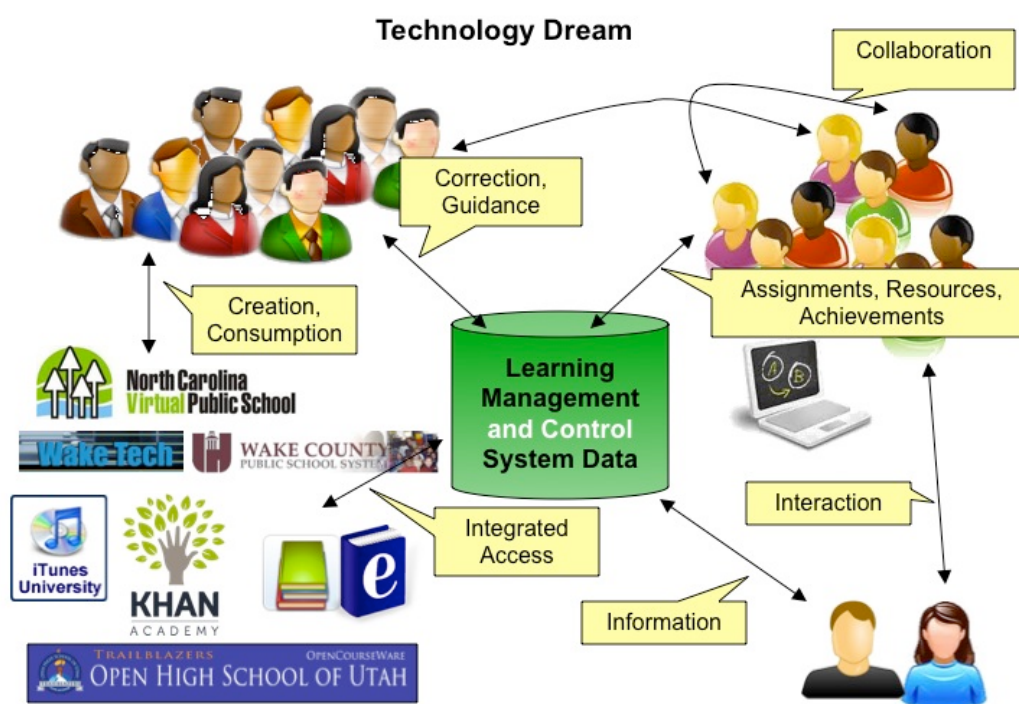


Figure 3. The Technology Dream flowchart reflects the technology components of the learning and organizational objectives.

Research Triangle High School

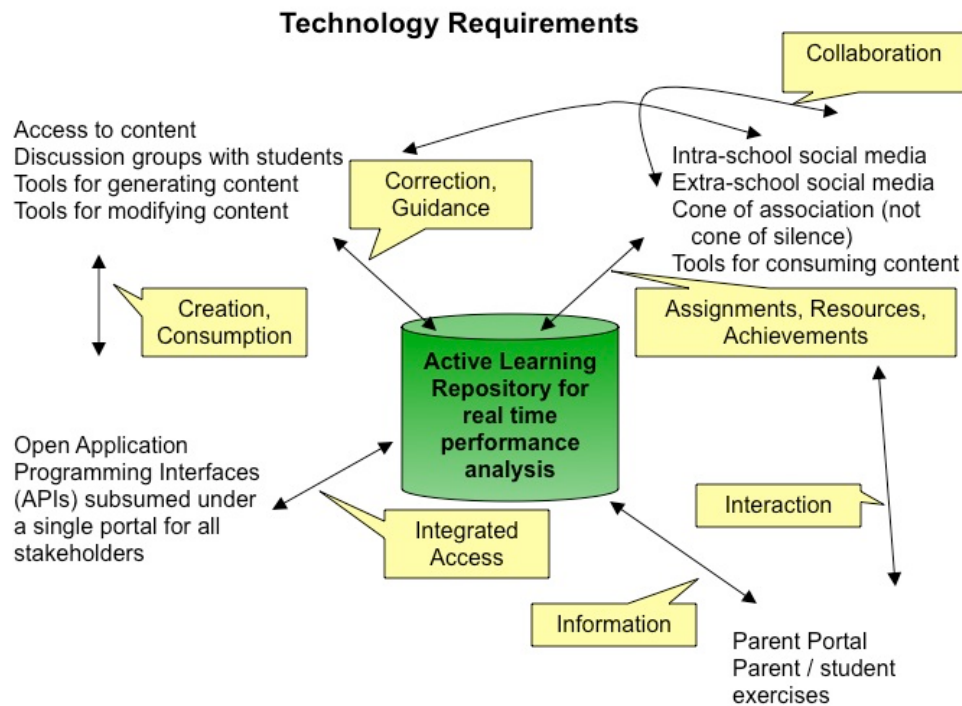


Figure 4. The Technology Requirements flowchart delineates the early assessment of the technology requirements that the educational plan is expressing.

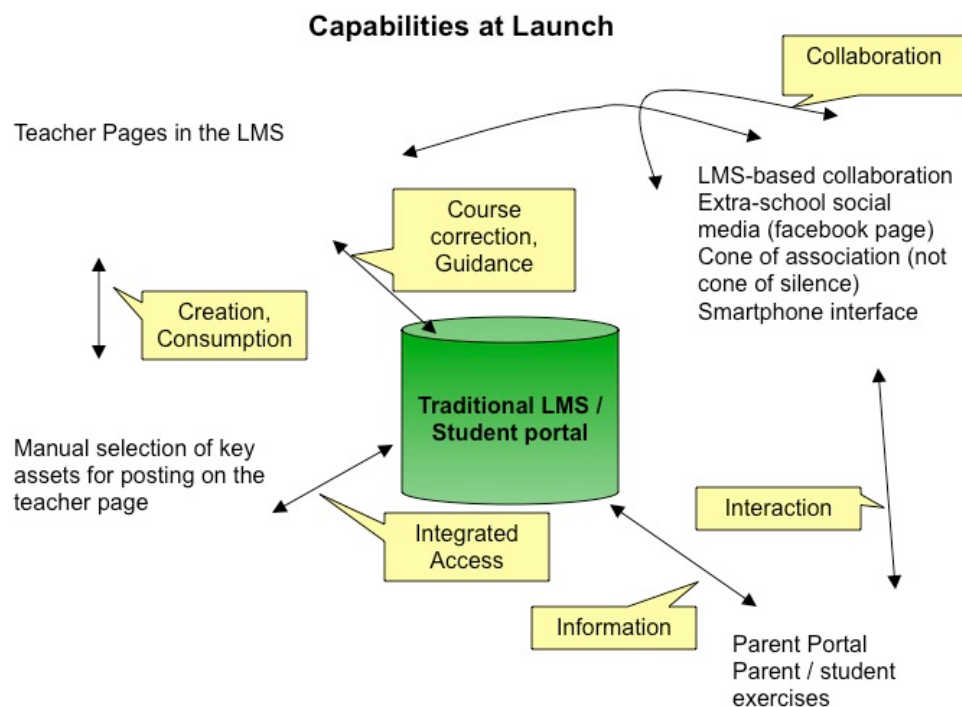


Figure 5. The Capabilities at Launch flowchart projects the proposed technology infrastructure to be in place in the first year of the school's program.

Research Triangle High School

3. Compliance with Federal and State regulations for serving exceptional children.

RTHS faculty and board are committed to serving all young people who enroll at this school as part of our regional community. This includes the community of students with disabilities. The needs of special education students will be met in accordance with federal and state laws and regulations, including the IDEA, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, North Carolina state legislation (G.S. 115C-106 Et seq.), North Carolina charter school legislation, G.S. 115C-238.29F(g)(5), and other relevant regulations/legislation. Research has shown that students whose exceptional needs can be met in a regular classroom benefit from remaining in that setting. Consistent with this research, our goal is to provide the maximum extent possible an inclusive academic environment for RTHS students. Separate schooling, or other removal of students with disabilities from the regular educational environment will occur only if the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. Please refer to Part B on Special Education for a more detailed description of the policies, procedures, and programs that RTHS will use to ensure compliance with all relevant special education laws and regulations at the state and federal level.

4. Entrance and exit requirements as well as graduation requirements (if the school is to be high school).

Entrance Requirements

Any student who is qualified for admission to a North Carolina Public School is qualified for admission to RTHS. Students will be required, after admission but before matriculation, to provide evidence of the successful completion of the previous school year in the form of a fourth quarter report card, attendance records, and documentation of EOG scores where applicable. Students will also be required to take a pre-test for assessment of placement and for long-term program assessment of the school. A birth certificate and current immunization record will also be required.

For admission, applicants must be able to successfully complete Algebra I by the end of their 9th grade year, or ready for a higher mathematics course in the ninth grade. RTHS will have extensive programming in place to support students who have the ability to complete Algebra I in the 9th grade but who have not been well-prepared to do so, as well as an accelerated curriculum for those students who are prepared for more advanced studies. A summer 'Boot Camp' prior to fall enrollment will be developed and will be strongly recommended for students who need extensive math and literacy interventions in order to become proficient by the end of their 9th grade.

Exit Requirements

In order to graduate from RTHS, students must successfully complete all of the requirements for the state's college/university preparatory course of study, including at

Research Triangle High School

least two consecutive years of a foreign language. RTHS, a STEM school, will require four years of science for graduation, beginning with Biology in the 9th grade. As a community of STEM educators, it is felt that all students need to complete a Physics course to graduate as scientifically literate citizens; but this course may be offered as an Algebra-based survey of Physics, not as Calculus-based. All students will be placed on a critical-skills learning path that is designed to guide them towards independent learning and hopefully to a senior year internship at an RTP company. The school reserves the right to impose additional local requirements in future years.

Graduation Requirements for RTHS	
Mathematics	4 units (Algebra I and three other courses)
Science	4 units (Biology, Chemistry, Environmental Science, Physics)
History	4 units (World History, Civics and Economics, and U.S. History I and II)
English	4 units (English I, II, III, IV)
World Language	2 units (including one course beyond the first year)
Healthful Living	1 unit
Electives	4 units (Internships are included)
Total	23 units

Table 2. Graduation Requirements for RTHS

5. The school calendar (must provide instruction for a minimum of 185 instructional days) (G.S.115C-238.29F(d)(1))

The school consists of 185 days over a 9-month schedule. These 185 days will be divided into instructional days, some in-year teacher workdays and Flex/Ex instructional days. Flex days are anticipated to be held at the end of each quarter, depending on teacher needs. There will be at least 185 instructional days and 14 teacher workdays. There will be at least 5 days of teacher workdays at the beginning and 5 days at the end of each school year for preparation and grading/close-out. In addition, teachers will meet weekly on Friday afternoons in their Learning Teams for collaborative planning and evaluation. Summer 'Boot Camp' days will be in addition to the school calendar and managed as a separate program. The final calendar will take into consideration the time necessary to administer all segments of the testing requirements set forth by the NC ABCs Accountability model and the Federal No Child Left Behind (NCLB) legislation. During the planning year, the Board and the school administration will have the opportunity to make minor adjustments to this calendar to assure the program integrity and intentions are thoroughly established. The expected start and end dates for 2012-2013 are August 25th and June 10th, dependent on the Department of Public Instruction's plans for the coming year.

Research Triangle High School

6. A concise description of any evaluation tool or test, if any, that the proposed charter school will use in addition to any state or federally mandated tests and how this data will be used to drive instruction.

RTHS may begin each student's enrollment with a pre-matriculation math and/or writing assessment to determine what skills the students have and what gaps there may be in their learning before beginning the program at this school. These pre-tests will allow RTHS teachers to differentiate and accelerate instruction for each and every student. This pre-test will be used to design an individualized path for each student through either:

- Material that will close student gaps in being prepared for a college prep high school, including more time on material and more time with their teachers, *or*
- Accelerated material that will challenge and expand on the student's needs.

During the school year, formative assessments will be given throughout the learning process in order to benchmark student learning and immediately intervene and redirect each student's learning pathway. Quarterly summative assessments will also be administered, to afford students the opportunity to review and embed learning from the grading period.

The RTHS will participate in the ABC Accountability model and administer all required NC End-of-Course exams each May, as required by law.

7. A description of the student achievement goals for the school's educational program and the method of demonstrating that students have attained the skills and knowledge specified for those goals. These goals should include specific and measurable performance objectives over time. A timeline should be included to highlight how the school proposes to meet its objectives.

The objective for student achievement at RTHS is two-fold:

- We wish to accelerate learning for all students, such that they cover more years of material in their four years in high school, whether they enter behind the average or vastly ahead, as a way to prepare all students for college.
- We strive to prepare students for the 21st century workforce by instilling in them the skills and habits of thinking that our global companies are seeking. This requires us to guide young people to become independent, innovative problem solvers.

To that end, we have a series of goals for student achievement.

1. Literate graduates ready for college – Our first goal, the platform of learning at RTHS, is for all students to move through a rigorous, college-preparatory curriculum, measured in somewhat traditional formative and summative ways. All students need to learn the core curriculum of math, the sciences, English, history, a language, and the arts in order to graduate as educated, college-bound young people.

Research Triangle High School

2. Independent self-learners – Our second and equally important goal is for each student to move from being a teacher-directed dependent learner to an independent, self-guided one. To that end, each student will be started on their Flipped courses with structured expectations for material they must cover, and guided gently - some quickly, some more slowly – to making their own choices about how they can best learn required ideas and concepts. All students will be moved along this continuum over their four years at RTHS. This movement will be measured by monitoring and tracking their usage of online Flipped material and comparing that to performance on formative and summative exams. The RTHS Learning Management System will supply the data for teachers to track this movement. Students will also be monitored for their performance in off-campus and on-campus mentoring, demonstrating their ability to *teach* what they have learned and to *do* what they have learned, either with their peers or nearby middle school students.

3. Critical thinkers – All students will be guided to develop strong critical thinking skills, and their advancement along this path will be measured by rubrics that will delineate expectations on the scale from non-mastery to exemplary. RTHS's special focus on Flipped learning will specifically allow teachers to observe, guide and develop students' thinking, group and collaboration skills. These skills will be developed and looked for in the classroom, labs and group activities that take place between teachers and students.

4. Professionals –It is our hope that all students can advance into RTP internships, be they in science research, marketing and communications, or business office skills. Students will be guided and assessed by rubrics in their readiness to undertake this off-campus experience. By senior year, a student should have progressed through a series of higher order experiences that showcase a portfolio of these professionalism skills. These assessments may include evaluation of: maturity, honesty, adaptability, initiative, confidence, enthusiasm, emotional maturity, time management skills, problem-solving skills, accomplishments, intellectual independence, analytical ability, team or individual work, class contributions, leadership, organizational skills, and expression of ideas (verbal and written). These will be self, peer and teacher assessments.

Skills	Material	Quarterly	Annually
Content Mastery	The Enhanced and Expanded Common Core & Essential Standards	Summative & Formative	EOCs
Independence & Initiative	Progression in ability to move from teacher centered to student centered learning	Student and Teacher track progress - Ongoing	Conference
Critical Thinking	Classroom, Labs & Project-based Activities	Project Rubrics - Bi-quarterly	Conference and Portfolio
Professionalism	Work Skills & Internship Readiness	Rubric, Self, Peer and Teacher assessments	Rubric, Self, Peer and Teacher assessments

Table 3. Assessment Timeline

Research Triangle High School

8. An explanation of how the school will provide assistance to students that are not performing at expected levels to ensure the continued progress of student growth. The applicant needs to define their “expected levels” of performance and delineate a plan accordingly.

Teacher Learning Teams will analyze all formative and summative data, and all rubrics and observations, to regularly assess which students are not performing at expected achievement levels, defined as learning college-preparatory material at a level and depth needed to progress to the next high school course and on into college-level material. Students not progressing at achievement levels designated by the teams will progress through a pyramid of intervention, from redirecting their learning on their Playlists to personal attention:

- All students will have at their disposal the resources of the campus throughout the entire day from 8 AM to 6 PM – enabling additional time with their teachers, the opportunity to re-visit a lecture or group experience, the time to revisit their Playlist of learning materials, to be mentored by older students in the central Café, and/or to join group sessions in which they can ask questions and advance.
- Students’ work will be discussed by their Learning Teams, and students will be reassigned and regrouped to address their learning gaps. Their playlists may be revised to better address their learning needs. They may have new options to view a reshuffled playlist, be assigned to a Café appointment with a mentor or study group, or advised to make a private appointment with a teacher. The blend of ‘Flipped instruction at their individual disposal, and experiences with their classes, teachers and peers, are all designed to be flexible enough for students to be guided through this pyramid of intervention such that they experience this not just as intervention but as truly *learning how they learn*.

These systems of intervention will enable great differentiation of learning for all students, enabling constant regrouping and reassigning of students as their learning starts and stops, and enabling also the acceleration of learning. It is our intention that the entire structure of the school will enable constant looping back through material, as needed and as guided by their Learning Teams, for students who need it, ensuring that all students progress through the college-preparatory courses required for graduation and success in the RTP work world.

9. Details of the proposed charter plan to involve parents and community members in the school.

The RTHS is intentionally located in the middle of Research Triangle Park so that its instructional program can include community scientists, engineers, Information Technologists and others – including parents – as volunteers in the Learning Teams and experiences of the schools. The RTHS program will build upon the seven years of the Field Study program of the Contemporary Science Center, the eleven years of the

Research Triangle High School

Flex Program at Raleigh Charter High School, where students spend two days per quarter experiencing real-world resources and people for both curricular enhancement and service learning, and the research and experience with Learning Teams at National Commission on Teaching and America's Future. RTHS will bring RTP community resources into the school as lab volunteers, podcasters and interviewees, scientific experts, Café mentors and problem solvers, and as many other ways as we can. The Learning Teams model is designed to include all of these individual community resources into the instructional teams so that all of their vast expertise can be brought to bear on the learning needs and objectives of the students.

In addition, a parent community has begun to support the development of the school, organized by parents of middle-schoolers, some of whom are looking for a stronger STEM education for their children and some of whom are interested in developing a stronger public education system for the broader state. These parents are helping to research and design some of the programmatic aspects of the school, including transportation and food service, marketing and communications, and research into varied national STEM programs. This core community is excited at the RTHS as a model for educational innovation beyond their own family needs and will form the core of the parent volunteers who will join and expand upon our efforts as the school evolves and matures.

The philosophy of RTHS is to include authentic resources in its curriculum and instructional methods, be they scientists, parents or parent scientists. In addition, parents are considered partners in their students' learning and their participation in both the learning and the success of the school are critical. Parents with experience in this level of involvement will be recruited, and parents without this experience will be courted and encouraged to become involved in ways that fit their family circumstances. The school will be open to a wide variety of contributions from the full spectrum of parent abilities.

10. Explanation of how the school will meet the needs of gifted students, English language learners, and other at risk students. Includes details of the school's process for identification and service of these students.

RTHS will be able to meet the needs of a broad spectrum of students because of its unique school design. The focus on Flipped learning and its application to differentiation, and the equal focus on experiential learning, are ideal for both students who have skill gaps and for those who are hungry for acceleration. The Flipped schedule and the longer school day will enable at risk students to have greater access to the school resources, both online and in person. At risk students can loop through various forms of the same material over the course of the full school day, surrounded by supporting teachers and mentors until 6 PM. At the same time, it will allow gifted students access to more challenging curriculum. Instead of watching their own teacher explain a Biology or Math concept, for example, accelerated students can watch MIT Open CourseWare lectures.

Research Triangle High School

Students will be identified by the pre-matriculation assessment to determine if they are at risk of not progressing in college prep material, and regularly tracked and assessed by their Learning Teams, as explained above. In addition, the RTHS commitment to enrolling a broad representative population of the Triangle region will enable students to have the critical mass to form cohort groups that support each other socially and communally, while also cross-organizing for experiential learning, labs, mentoring, interning, the arts and sports. Intentional hiring of diverse faculty will allow faculty cohort mentors to guide these groups socially and academically.

Limited English Proficient (LEP) Students will initially self-identify when they complete paperwork and state their native language. Any student that declares a native language other than English will be tested using the standards of World Class Instructional Design and Assessment (WIDA). WIDA is used to identify English proficiency in LEP students in 27 states, including NC. If the LEP student's need is significant enough, the school will provide English as a Second Language (ESL) instruction. Literacy support in content areas for all LEP students in the areas of linguistic complexity, content vocabulary, vocabulary usage, and language control will be provided. Training for all instructors in how to support LEP students will also be a key element of the literacy support provided by the school.

V.B. SPECIAL EDUCATION (G.S.115C-106)

The charter school must accept special needs children under the federal legislation Individuals with Disabilities Education Act (IDEA) (20 U.S.C. 1400 Et seq.) and the state legislation (G.S. 115C-106 Et seq.).

Provide a clear and thorough explanation of the procedures the proposed charter will follow to insure compliance of the above laws.

The school will comply with all provisions of State and Federal special education Laws. Students entering with an Individual Education Plan (IEP) will be provided a full inclusion program with the input from the Special Education Teacher and their School Support Team. All efforts will be made to accommodate the IEP within the least restrictive environment (LRE). Research has shown that students whose exceptional needs can be met in a regular classroom benefit from remaining in that setting. Self-contained and/or one-on-one services will be provided for students with an IEP requiring such services. The staff will be made aware of students with an IEP and trained in their education such that that all requirements are being met as prescribed. The IEP will be updated per the law and adjustments will be made to accommodate each student. All appropriate staffing and meetings will be met as required by NC State Law and Federal Law IDEA, ADA 1990 and Part 504 of the Rehabilitation Act of 1973, for identification of children and meeting the needs of children with potential special needs. There will be ongoing assessment in classrooms to determine if a child is of special needs.

Research Triangle High School

We will treat all children on an individual professional basis. This includes and is not limited to:

1. A school-wide Non-Discriminatory policy regarding identification, location, evaluation and selection of students.
2. IEP's developed in IEP meetings with parents/guardians and the IEP committee, including but not limited to:
 - Least restrictive environment
 - Parent/Student participation in decisions
 - Procedural due process
3. Offering a full list of services that will be provided to serve the needs of the exceptional student population:
 - Academic assistance periods
 - Consultation and collaboration
 - Speech therapy, physical therapy and occupational therapy
 - Enriched curriculum
4. For learning disabled (LD) students, they will experience a fully inclusive classroom. In the first year, RTHS will have on-staff at least a part-time, if not full-time, special education teacher, depending on the caseload of the enrolling population. This teacher will work with teachers in classrooms to assist in modifying the curriculum for identified students, support IEPs, develop learning strategies with the students, and meet with parents and teachers.

Modifications and strategies may include extended time on assignments and tests, preferential seating, tutoring, either in class or outside of the classroom, and assistance from the special education teacher.

5. Students with Limited-English Proficiency (LEP) will be assessed upon entering the school. The school will provide services to those qualifying students. We will comply with all requirements per the law to make sure that the LEP are served appropriately. The teachers will receive training to develop teaching strategies to better serve this population.

The Exceptional Student Education (ESE) and LEP faculty members will be responsible for assisting the classroom teacher in designing a classroom that will meet the needs of these students as well as the other students in the class. Therefore, it is the intent of the school to use an inclusion model to its fullest possible extent. It is understood that this may not always meet the needs of the students in each class.

When the students require extended services, it will be the design of the school to use the extended school day and Flipped model and flexible access to teachers and peers to give these students the added instruction or services they

Research Triangle High School

require. The intent of this design is to keep these students from being seen as exceptional.

6. The school will provide a certified staff member to provide services for students with exceptionalities including ESE and LEP students. The school realizes it is the school's responsibility to meet the needs of these students and will ensure from day one hiring or contracting with appropriate professionals to meet the needs of the young people.

Research Triangle High School

V.C. STUDENT CONDUCT AND DISCIPLINE (G.S.115C-238.29B(b)(12); G.S. 115C-238.29F(d)(4 and 5))

Provide drafts, included in this section (do not include as an appendices), of student handbooks and other policies governing student conduct and discipline. Include policies and procedures governing suspension and expulsion of students. Specifically address these policies with respect to exceptional children. Also describe how a parent could appeal the decision of a school administrator through a grievance process.

DRAFT STUDENT HANDBOOK

- **Mission & Core Values**
 - Letter from School Leader
 - Campus Location
 - School Hours
 - Independence at RTHS
 - Flipped Learning
 - Blending Virtual and Experiential Learning
 - RTP Partnerships in STEM
 - Residency Program for Teachers
- **General Information**
 - *School Hours*
 - In an effort to make the most of each school day and learning opportunity, our school day will extend beyond traditional high school hours. Our day will run from 8:00am-4:00pm, with additional opportunities available to students from 4:00pm-6:00pm depending on their course load, internship opportunities, and need for extra tutoring or time with teachers.
 - Friday the day will run from 8:00am-2:00pm, with Team Development every Friday afternoon from 2:00pm-5:00pm. We believe that a strong team of teachers and staff will lead to a strong school culture, allowing students to achieve the best results possible. Early dismissal on Fridays allows us to explicitly prioritize this, and build in time for teacher and team development.
 - *Attendance*
 - In order for students to achieve the most growth each year, it is imperative that they are in school as much as possible. We will enforce this priority everywhere, starting with our school attendance policy.
 - **Excused Absences-** All excused absences must fit into one of these five categories. 1) Personal illness of the student. Three consecutive days or more will require a doctor's note verifying the

Research Triangle High School

illness. 2) Death or serious illness in the immediate family; 3) Subpoena for court appearance; 4) Recognized religious holiday; or 5) any exceptions approved by the principal. All excused absences must be accompanied by a note explaining the absence, and should be brought to school with the student immediately upon return that morning. Teachers must allow students to make up work for all excused absences. However, it is the responsibility of the student to follow up on all work, and to complete it within a reasonable time. The time allowed will be up to the individual teachers and grade-level teams.

- **Unexcused Absences-** Absences that will *not* be counted as excused include, but are not limited to, the following: family trips, non-school related athletic events, extreme tardiness or early dismissals, etc. In a rigorous college preparatory school, we understand the importance that students are in attendance as much as possible. Students are still required to communicate non-excused absences, and are 100% responsible for completing all work missed due to absence.

- *Tardiness*

- In order for a student's attendance to be counted, they must check in to school before 11:30am, or remain at school until 1:00 pm. If you do not meet these criteria you will be considered absent. If a student knows in advance that they will be tardy (doctor/dentist appointment, etc.), they should notify the office by 7:30am. When students arrive, they must sign in at the office before going to class.

- *Early Pick-Up*

- If a student must leave school early for something unavoidable, they must provide a written request with the reason for leaving by a parent/guardian. This request must be given to the office the morning of the early dismissal. Students are also responsible for collecting any missed work *prior* to leaving, as opposed to when they return to school.

- **Student Management**

- *Dress Code*

- *To be developed by founding faculty.*

- *Honor Code*

- We believe that students must take responsibility over their behavior and choices, including those of academic honesty. The school Honor Code is meant to serve as a guideline for what is

Research Triangle High School

expected of students academically, and to emphasize the importance of academic integrity and honesty in all. The Honor Code states, *“As a member of this community, I pledge my full and steadfast support to the Honor Code and I promise not to lie, to cheat, or to steal. Furthermore, I promise not to hurt another member of our community, our team and our family.”*

- Students will be required to attest to this honor code at the beginning of each school year.
 - Some examples of behavior that violates the school Honor Code are listed below, but not confined to this list.
 - Lying and forgery.
 - Plagiarism and cheating.
 - Stealing
 - Actions or words that hurt others, or are considered disrespectful.
 - In any case where there is lack of clarity, it is a student's responsibility to check with their teacher or proper authority. Lack of clarity should never serve as an excuse for violating the school Honor Code.
 - Any Honor Code violations will be sent to the school Honor Council. This council will consist of two students from each grade level, as well as several teachers/administrators. Names of students serving on the council are to be kept as secret as possible, to maintain a fair and balanced approach to all cases.
 - Any initial academic violation of the Honor Code will result in a reduced grade on the assignment. For a first violation, the student is permitted to take a make up test and the top possible grade is a 70, which is the lowest possible D. Any future violation will be recorded on their permanent transcript. For the second violation, the result is a zero. The Honor Council will be responsible for any additional consequences.
- *Academic Probation*
 - If at any time a student's GPA drops below a 2.0 they will be placed on Academic Probation. Exceptional Students who are receiving modifications for their learning programs are expected to progress in their high school courses at their appropriate level. The goal of Academic Probation is to help a student re-prioritize academics, as well as receive the assistance needed to raise their GPA. It will begin with a parent/guardian meeting, so all parties are aware of

Research Triangle High School

the situation, and can begin brainstorming the best ways to move forward. For EC students we will bring together the IEP team and discuss further needs for EC modifications. Any steps developed by teachers, administration and parents/guardians will be mandated in order for the student to earn their way off of probation. Some examples would include mandatory tutorials, weekly progress reports for all classes, and loss of extracurricular activities (including sports).

- *Detention*

- After-school detention is held from 4:00pm-6:00pm daily (with the exception of Fridays). Detention is supervised by teachers, the Assistant Principal or the Principal. It is assigned at the discretion of the teachers for classroom misbehavior, incomplete or missing homework, disrespect, or other repeated behavior or academic issues.

- *Short-Term Suspension*

- Suspension is assigned in order to help correct recurrent behavioral problems that distract students from the goals of academic and personal growth. It should only be used after multiple solutions have been attempted, and have not shown effectiveness. Suspension can be in-school for more minor offenses, or out-of-school for more serious offenses such as:
 - Leaving school property without permission.
 - Skipping a class.
 - Disrespect to teammates or teachers
 - Classroom behaviors that interfere with learning
 - Use of, or possession of, alcoholic beverages or tobacco
 - Intimidation, harassment, or physical harm (sexual, physical or emotional) or the threat thereof

- *Long-Term Suspension*

- Long-term suspension for the remainder of the academic year is only used in severe circumstances. It is important that multiple attempts at redirection have occurred prior to long-term suspension. A 'manifestation determination' must be made before long-term suspension for EC students. Parents must be notified in writing of the cause for long-term suspension, and have 30 days to appeal in writing to the Board of Directors. The Board of Directors must respond to any requests for appeal within 15 days of receipt, and may call a special Board meeting for addressing grievances if one is not scheduled within 30 days. Again, it will be up to the Board of Directors whether the student will be readmitted that year,

Research Triangle High School

as well as the following year. Parent/Guardian may present to the Board of Directors with evidence of growth and the ability of the student to rejoin the community.

○ *Expulsion*

- Expulsion is only used in rare occasions that involve egregious violations to the community. It is a necessary option in order to preserve the safety of the student body as a whole, and may be immediate without warning, depending on the violation. The following are some examples (but not the only examples) of acts that constitute immediate grounds for expulsion:
 - Commission of a felony
 - Possession or use of any dangerous weapon or object
 - Assault of another student or teacher
 - Extortion or intimidation of another student or teacher
 - Possession of drugs or narcotics not prescribed by a physician
 - Destruction or defacing of property
 - Repeated or egregious defiance to school staff
 - Repeated suspensions
- Similar to suspension, parents must receive written notification of the expulsion from the Principal, and have 30 days to appeal in writing to the Board of Directors. A 'manifestation determination' must be made before expulsion for EC students. The Board of Directors must respond to any requests for appeal within 15 days of receipt, and may call a special Board meeting for addressing grievances if one is not scheduled within 30 days. Again, it will be up to the Board of Directors whether the student will be readmitted. Parent/Guardian may present to the Board of Directors with evidence of growth and the ability of the student to rejoin the community.

○ *Searches*

- When conducting searches of student property, the principal or someone designated by the principal, may seize any illegal or unauthorized items that may pose a threat to the student body. Such items include, but are not limited to:
 - Contraband
 - Controlled substance analogues or intoxicants
 - Dangerous weapons
 - Explosives
 - Firearms
 - Flammable materials
 - Illegal controlled substances
 - Poisons

Research Triangle High School

- Stolen property
- If any of these items are taken, law enforcement officials will be notified immediately. Any items confiscated will be taken by the principal and removed from the locker and held by school officials. They will then be turned over to law enforcement officials. The parent/guardian will be notified by the principal of the removed items.

Research Triangle High School

V.D. TIMELINES

Please create and describe a detailed start-up plan, identifying major tasks, timelines, and responsible individuals for accomplishing those tasks.

The following table describes the key activities that took place from when the idea first emerged of the Contemporary Science Center developing a STEM high school in June, 2010 meetings with key members of the Board of Directors of Research Triangle Park, until November, 2011 when this charter application was submitted.

The Contemporary Science Center, an independent science education non-profit, has on staff Pamela Blizzard, Executive Director and Amanda Marvelle, Education Director. Additional support has been contracted with Alice Lee, past Education Director; Elizabeth Altman, Marketing Consultant; Janice Smith, Faculty Advisor; and Eric Grunden, Board of Directors member.

Pre-Charter-Submission Activities			
Category	Activities Initiated	Initial Date	Key Players
Program Partnerships	Initial meetings with Research Triangle Park Board members to discuss future of CSC and idea of a STEM high school in RTP	Jun-2010	Pamela Blizzard, Ward Peterson (BOD prior member), John Kerr (BOD)
School Approval	First meeting with NC STEM with idea for RTP STEM High School	Aug-2010	Pamela Blizzard, Ward Peterson (BOD prior member), Karen Ondrick (BOD)
Faculty	Focus Group with teachers on initial program plans	Sep-2010	Pamela Blizzard, Eric Grunden (BOD)
School Approval	First presentation to JOBS Commission on plans for a STEM HS	Oct-2010	Pamela Blizzard, Eric Grunden (BOD)
Program Partnerships	Initial meetings with prospective partners NC School of Science and Math, UNC School of Education, National Commission on Teaching & America's Future (NCTAF)	Jan-2011	Pamela Blizzard, Ward Peterson (BOD prior member), Martinette Horner (BOD), Amanda Marvelle
Facility	Meetings with RTP CEO on prospective sites	Jan-2011	Pamela Blizzard, John Kerr (BOD)
School Approval	Second presentation to JOBS Commission on plans for a STEM HS	Jan-2011	Pamela Blizzard

Research Triangle High School

Board of Directors	Recruitment begun for open slots on Founding School Board for IT, Fundraising, Durham Outreach, Facilities, Statewide Outreach, Virtual School, Attorney, (including African American members)	Feb-2011	Pamela Blizzard, CSC Board of Directors
Faculty	Meetings with Teach for America on Residency program development, alumni available for faculty	Mar-2011	Pamela Blizzard
IT	Meeting with IBM and CISCO to identify Founding Board member and program support	Mar-2011	Mike McBrierty (BOD), Pamela Blizzard
Facility	Identified prospective sites in RTP for school	Mar-2011	John Kerr (BOD), Pamela Blizzard
Fundraising	Approval by Biogen Idec Foundation for support of STEM HS	Jun-2011	Pamela Blizzard, CSC Board of Directors
School Approval	Meeting with Sen. Stevens on expectations for charter schools & new process	Jul-2011	Jerry McCrain (BOD Chair), Pamela Blizzard
Board of Directors	BOD candidates identified for open founding board positions	Aug-2011	CSC Board of Directors
School Approval	Charter application team organized and begun writing	Aug-2011	Pamela Blizzard, Amanda Marvelle, Alice Lee
Faculty	Faculty Advisory Team organized and begun meeting to define Education Plan	Aug-2011	Pamela Blizzard, Amanda Marvelle, Eric Grunden (BOD)
Facility	Architect and builders walk through prospective sites, narrow options	Aug-2011	John Kerr (BOD), Pamela Blizzard
Finances	Accountant identified to develop Pro Formas for charter application	Aug-2011	Pamela Blizzard, Betty Warren
Fundraising	Presentation to RTP BOD for support of STEM HS	Sep-2011	Pamela Blizzard, CSC Board of Directors
Board of Directors	CSC BOD revises By-Laws to change from a non-profit to a charter school	Sep-2011	CSC Board of Directors
Board of Directors	BOD candidates voted upon and offered positions on Founding School Board	Oct-2011	CSC Board of Directors

Research Triangle High School

Program Partnerships	Approved support from NC School of Science & Math and UNC School of Education for charter school programs; Continued meetings with NCTAF scheduled	Oct-2011	Pamela Blizzard; Melissa Thibault (BOD), Martinette Horner (BOD)
School Approval	Charter application completed and ready for submission	Nov-2011	Pamela Blizzard, Amanda Marvelle, Alice Lee, Eric Grunden (BOD)

The table below lists the key activities required for the opening of the school, to be underway from November, 2011 until August, 2012.

School Opening Plan			
Category	Deliverable	Target Date	Key Players
Faculty	Staff Recruitment Begins; Open House for targeted faculty	14-Nov-2011	Pamela Blizzard, Faculty Advisors
NC DPI	Charter Application submitted to the Office of Charter Schools	10-Nov-2011	Pamela Blizzard, Amanda Marvelle, Alice Lee
Marketing	Marketing Plan developed; Website design begun	10-Nov-2011	Elizabeth Altman, Amanda Marvelle
Program Partnerships	Memorandums of Understanding written and agreed upon with Partner Programs for key initiatives (<i>Wake Tech, School of Science and Math, UNC Best, NCTAF, IBM, NC Virtual Public School</i>)	1-Dec-2011	Pamela Blizzard
Faculty	Offer made to School Leader	25-Dec-2011	Pamela Blizzard, CSC Board of Directors
Marketing	Website live in English and Spanish; Communication materials begun	15-Dec-2011	Elizabeth Altman, Amanda Marvelle
Facility	Final facility identified	25-Dec-2011	Pamela Blizzard, CSC Board of Directors
Students	Applications released for prospective students	1-Jan-2012	Elizabeth Altman, Amanda Marvelle

Research Triangle High School

Faculty	Founding Educators selected and begin on-boarding process.	1-Jan-2012	School Leader, Pamela Blizzard, Faculty Advisors, CSC Board of Directors
Marketing	Public information sessions begin for parents and students	15-Jan-2012	Pamela Blizzard, Amanda Marvelle, CSC Board of Directors
Program Partnerships	Agreements signed with Partner Programs for key initiatives (<i>Wake Tech, School of Science and Math, UNC Best, NCTAF, IBM, NC Virtual Public School</i>)	1-Mar-2012	Pamela Blizzard, School Leader
Students	Student Lottery	15-Mar-2012	RTP Volunteer, School Leader, School Staff
Facility	Facility ready for move-in	1-Jul-2012	Pamela Blizzard, Contractors
IT	IT ready for start-up	1-Jul-2012	Pamela Blizzard, Craig Nygard
Program Partnerships	Program Partnerships in place for Implementation at Opening (<i>NCTAF, UNC Best</i>)	1-Jul-2012	Pamela Blizzard, School Leader
Curriculum	Expand upon and enhance the required state and national curricula of Common Core and the <i>Framework</i> .	1-Jul-2012	School Leader, Founding Faculty
Students	Summer Boot Camp	16-Jul-2012	School Leader, Founding Faculty
Students	School Orientation	9-Jul-2012	School Leader, Founding Faculty
Finances	Partnership funding, architecture plans (facility), IT funding, sustainability	4-Feb-2012	Pamela Blizzard

Table 4. Timelines of critical activities for school opening.

Research Triangle High School

VI. BUSINESS PLAN

VI.A. PROJECTED STAFF

Provide a list of positions anticipated for the charter school; (e.g., principal or director; support staff; teachers, part-time and full-time; paraprofessionals/teaching assistants, clerical, and maintenance.)

RTHS believes that a school community is most successful when the community is open and collaborative, and includes a clear reporting structure and specific job responsibilities. RTHS will endeavor to create this collaborative, respectful culture amongst all employees – staff, faculty and leadership – while observing the direct reporting lines of faculty and staff to leadership.

The following positions are projected for the point at which the school achieves full enrollment as a high school, in year four.

Position	Full Time (FT)/Part Time (PT)
School Leader	FT
Teaching Staff	FT
EC Teacher	TBD
Receptionist/Admin	FT
Financial Officer	PT
NC Wise	FT
21 st Century Media and Outreach Specialist	FT
Development Director	FT
I.T./Technology specialist	FT
College counselor/Testing	FT
Athletic Director	FT
Alliances and Partnership Leader	PT
Professional Development Director	FT

Table 5. RTHS Projected Staff Chart for Year 4 at Full Enrollment

Also include the following information for the proposed charter school:

- Process to advertise for and employ staff of the school

RTHS has been quietly recruiting for the opening of school since summer 2011. We have met with many teachers who are looking to join an innovative start-up, from Durham and Wake public schools and from Independent schools. All interested applicants have been encouraged to follow the CSC Facebook group where regular information on the development of this school is now posted. The school also has an extensive Wiki¹⁶ which is a collection point for all the meeting

¹⁶ <http://csrtphs.wikispaces.com/>

Research Triangle High School

plans, notes, research papers, websites and newspaper articles used by the Faculty Advisors, and interested parties are encouraged to make themselves familiar with this material to learn about the school. In November the CSC is holding an Open House at its temporary offices in RTP specifically for interested teachers and prospective school leaders. This session will be used to recruit the core founding team. Outreach for this event is going through the Faculty Advisors and the CSC list of teachers who have brought classes to the CSC. Especial attention is being paid to ensure the recruitment of a diverse faculty that will be able to representatively recruit and teach a diverse student body. As over 40% of past attendees to the Contemporary Science Center programs have been African-American, we are relying heavily on this network for recruitment.

For staff hiring, RTHS will take advantage of the services of *Smart Moms*. Smart Moms is a minority-owned employment/staffing company based in the Triangle. The contact and owner is Garla Smith. They have come strongly recommended by an HR Manager with whom we have worked extensively, and hopefully will be able to put us together with a strong pool of opening office staff and administrative employees.

All employees, both staff and faculty, will be evaluated annually by the School Leader or the Alliances and Partnerships Leader, depending on their reporting manager. Evaluations for faculty will include feedback from the Learning Team sessions, regular observations and reflection meetings, and results of the students on their progressive assessments. Staff will be evaluated on performance based on job expectations, descriptions and objectives. School leadership will be evaluated based upon their annual goals and objectives by the Board of Directors annually before the June Meeting of the Board.

- Handbooks governing standards of conduct, grounds for termination, policies and procedures, etc.
See **Appendix C**.

QUALIFICATIONS REQUIRED FOR INDIVIDUAL POSITIONS (G.S.115C-238.29F(e))

List the qualifications and appropriate licenses that each position must have to perform the job function(s). Describe the plan to meet the licensure requirements for teachers and paraprofessionals as prescribed by state law and No Child Left Behind. If individuals have already been identified for specific positions, please provide their qualifications and/or resumes in the appendices.

Criminal background checks of all personnel are required by law and will be conducted on all applicants for board, faculty, staff, administrative, and volunteer positions.

Research Triangle High School

Teaching Staff

At RTHS we believe having a dedicated teaching staff is paramount to the success of our students and school, and the Federal standards for Highly Qualified teachers will be followed. A Baccalaureate degree or higher and proven experience/aptitude in the subject(s) being taught will be required. At RTHS we will hire teachers with the following rubric:

- Kind, caring individuals
- Smart, well-educated in their fields
- Ability to deliver instruction
- Entrepreneurial focus to their teaching in order to adopt Flipped, online and experiential models
- Willingness to learn to work in Learning Teams and share their abilities with others across the state

Teachers will be required to meet the standards set forth by NC Law for teachers in a NC Charter school (50% licensed in grades 6-12 in the subject areas where they are teaching) as well as those set by No Child Left Behind (NCLB) legislation, which requires teachers in core subject areas to meet Highly Qualified standards. RTHS will assist teaching candidates to become NC licensed and highly qualified, as necessary, including reciprocity agreements, lateral entry, and alternative national licensure programs. The responsibilities of our teaching staff may include, but are not limited, to: delivery of the specified course content, orienting students to their coursework and communicating course and school requirements, be reachable by students and parents by maintaining regular office hours, augment course content in the form of enrichment, modification, or remediation, implementing student IEPs and participating in their development as needed, grading student progress, participate in State testing, completion of student report cards, collaborating with teaching staff to increase course and curriculum integration. The teacher will have a shared view of the school's mission and be able to support all aspects of student learning.

School Leader

The School Leader will be required to have a proven track record of success in school and/or business management, and focus on the internal management of the school and its community. The School Leader should be able to:

- Maintain every aspect of the school mission;
- Inspire all students and staff professionals to consistently meet high expectations;
- Build a strong school community by having an open and sustaining relationship between parents, students, faculty, staff, board, community leaders and volunteers;
- Have the ability to create partnerships with businesses, local colleges and professionals to enrich the school's curriculum;
- Be an effective educator, keen to implement RTHS's innovative teaching methodologies.

Research Triangle High School

- Have an active role in planning and supporting instruction, high expectations of students, evaluation of teaching effectiveness and strength/weaknesses of instructional programs;
- Ensure that every student is taught by an excellent teacher by actively recruiting talented teachers, developing their teaching skills and retaining them;
- Have the ability to communicate clearly and effectively with staff teachers to help them aid students in high academic achievement;
- Work capably with administrative staff to oversee daily operations of the school, including but not limited to: management of school financial affairs, organization, policy and procedures, personnel management.

Alliances & Partnerships Leader

The Leader of Alliances and Partnerships will be focused on the external relations of the school in order to achieve the mission of innovating, proving and scaling RTHS tools and methods to teachers and schools outside the area. The Leader will:

- Develop and maintain strong relationships with Research Triangle Park entities and companies;
- Develop and maintain strong relationships with statewide educational non-profits, Department of Public Instruction, school districts and innovation centers;
- Ensure the financial sustainability of the external programs of the organization;
- Develop the outreach component of the school in Professional Development Residencies and ensure the establishment and growth of Residencies over the first five years of school opening
- Develop the outreach component of the school in online and virtual tools and methods and ensure the establishment and growth of open source availability of those tools.
- Examine and develop ways for the school to reach out further into the NC public school arena for deeper, broader impact to ensure the school's goal of being a 'Charter 2.0' entity is met; including:
 - Developing relationships with regions which may want to replicate the RTHS model either statewide or nationally

Development director

The Development director will report to both the Alliances & Partnerships Leader and will be in charge of overseeing all fundraising efforts which will include but is not limited to developing and cultivating relationships with funders, writing grants, researching foundations and corporations, overseeing or implementing fundraising strategies, establishing a structure for effective fundraising, evaluating the school's future financial needs and goals, creating a long-range fundraising plan and updating it yearly, instituting a public-relations program, maintain fundraising records, writing fundraising letters, reporting to foundations or large donors on specific projects, and visiting major donors. The essential skills required for this job will include prior fundraising experience or such skills as running a small business, managing personnel, planning and working with diverse groups, good organizational skills.

Research Triangle High School

School administrators

Financial officer

The candidate for financial officer should have a Certified Public Accountant license (CPA) or equivalent experience. The financial officer will manage all aspects of the financial affairs of the school, which include but are not limited to: developing annual budget, maintaining financial data and reporting to all accountable parties, and working stringently with the ISIS accounting system for cash flow and check processing.

Receptionist/Office Manager/Administrative Assistants

Office administrators will handle all administrative tasks that support the school and school leader. These duties may include but are not limited to student information (application, immunization, transcript records), basic communication with teaching staff, school organization (scheduling, visitors, maintain office equipment and supplies), performing routine administrative, secretarial, club bookkeeping and clerical work in support of effective and efficient operation of the school. The position requires either through education or experience responsible administrative or clerical experience.

I.T.

The Information technologist (IT) will be responsible for the day to day technical support needs of the school, which may include but is not limited to: on-site and remote desktop support, providing user setup and staff training, installation, maintenance and repair of computer hardware, software and networks, help to incorporate and/or transition new technologies (media, software, hardware, etc.), recommendations about future planning and development of resources, maintaining inventory of technology hardware, software and resources, researching current and potential resources and services, and monitoring security of all technology. The IT professional must have proficient knowledge (through both education and work experience) and demonstrated skills in: computer hardware and software systems and programs, computer security, installing computer networks, network administration.

NCWISE

The NCWise position is the student information management position utilizing the North Carolina Window on Student Education (NC WISE) system. He/She will handle all aspects of data entry, reporting, etc. associated with NC WISE. The position requires either administrative or clerical experience and a strong sense of privacy and attention to detail.

College Counselor/Testing

The college counselor will guide students with all aspects of college admissions (application, testing, college and career options) as well as accountability for all State testing requirements. Specifically, the counselor is expected to be able to work with students to help evaluate their abilities, interests, talents, and personalities to develop realistic academic and career goals. This may include the use of interviews, counseling sessions, interest and aptitude tests. He/She will operate the career information center and career education programs. The counselor may advise students regarding college

Research Triangle High School

majors, admission requirements, entrance exams, financial aid, other trade or technical schools, and apprenticeship or internship programs. This position requires the counselor to interact with not only students, but may consult with and collaborate with parents, teachers, school administrators to develop and implement strategies for the students' success. Some travel nationally is required. The candidate should have a strong desire to help students, to inspire respect, trust and confidence. Education and training requirements may include a Master's degree or appropriate licensure.

Director of Professional Development/ Instructional Coach

This position will oversee all components of staff professional development, as a part-time position. This coach's role will be to be an advocate for all teachers and their professional growth, to facilitate the Learning Teams, and to develop and execute the Residencies program. They will oversee the development of PD Scope & Sequence, planning and execution of all Professional Development sessions, observe classrooms to keep a constant gauge on teacher performance, and collect and lead analysis on all evaluation data.

21st Century Media and Outreach Specialist

This position will require providing community outreach for teachers outside of standard curriculum needs, such as coordinating logistics for Flex days, provide support for and coordinating relationships outside of school (companies, internships, community organizations, universities). This position will also require research into and curating of the different online methodologies teachers can use in their instruction and curriculum needs. A background in community outreach, library science and/or media technologies would all be important in this position.

Athletic director

The Athletic director will coordinate all athletic activities and associated personnel. An effective director will be able to oversee all aspects of the high school athletic programs, including but not limited to: providing leadership, guidance and direction for sports programs, scheduling, team travel, purchasing and maintaining equipment, budget preparation, hiring of coaches and facility management. The candidate must possess good planning and organizational skills, public relations skills, and be an effective oral and written communicator.

Research Triangle High School

VI.B. ENROLLMENT

Provide a plan indicating how the school will reasonably reflect the demographic composition of the district in which the charter school will be located or of the special population the school seeks to serve: (G.S.115C-238.29F(g)(5))

The proposed school will abide by the charter school legislation, G.S. 115C-238.29F(g)(5), as stated below:

A charter school shall not discriminate against any student on the basis of ethnicity, national origin, gender, or disability. Except as otherwise provided by law or the mission of the school as set out in the charter, the school shall not limit admission to students on the basis of intellectual ability, measures of achievement or aptitude, athletic ability, disability, race, creed, gender, national origin, religion, or ancestry.

The RTHS is fundamentally committed to targeting a population that is representative of the wider Triangle region. It is our desire to enroll students who reflect the region's diversity in ethnicity, socioeconomic status, rural vs. urban composition, gender and non-English-speaking origins. We hope to achieve a balance of these groups in sufficient cohort numbers such that the students can develop internal support groups. It is our intention to enroll students who come from the *greater* Research Triangle region, representing the rural by-ways in and out of RTP, the cities of Durham, Cary and Raleigh, the commuting residents of surrounding counties like Chatham and Granville, and children of the 42,000 employees of RTP itself.

Our demographic goals reflect the diversity of the region in which the school will be located. We mapped drive times (**Figure 6**) from the proposed school location of 400 Park Office Drive, Durham, NC 27709. Based on the assumption that we will attract students within 30 minutes of the school, we anticipate enrolling students from Durham, Wake, Orange, Chatham, and Granville counties.

Research Triangle High School

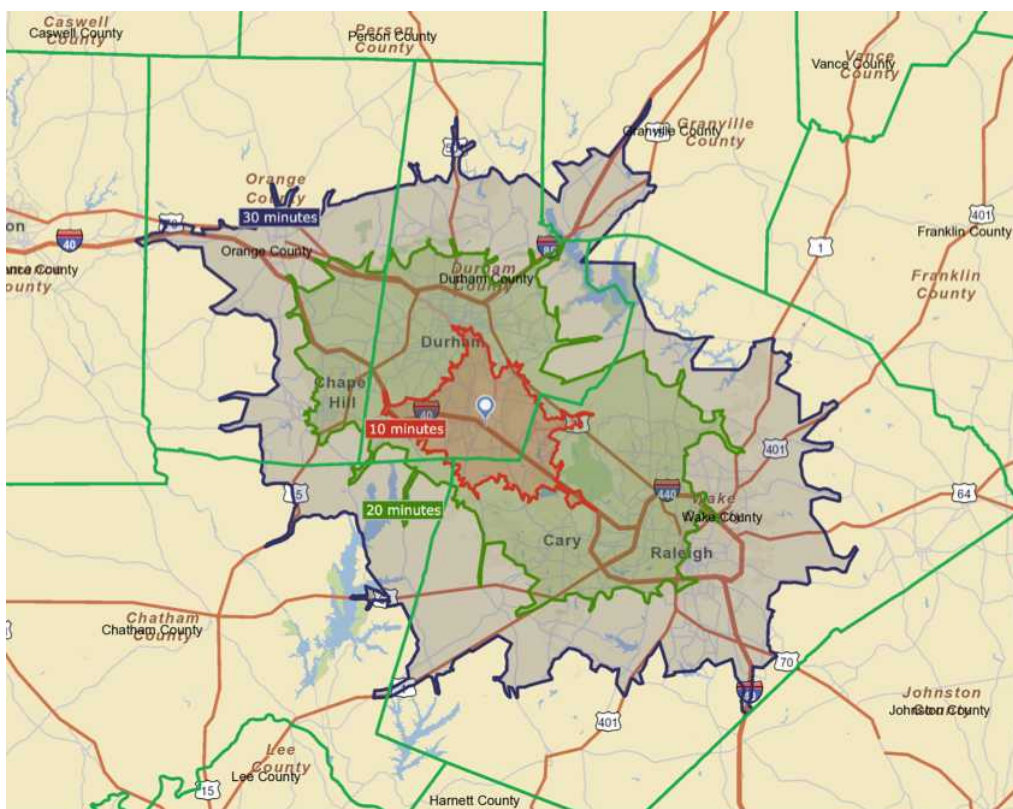


Figure 6. Concentric areas showing drive times from RTHS. Red represents 10 minutes; green represents 20 minutes; blue represents 30 minutes. We anticipate enrolling students from Durham, Orange, Wake, Chatham, and Granville counties.

To better understand our targeted population, we analyzed the 2000 U.S. Census Bureau data for each of the concentric driving areas.¹⁷ The population represented within 30 minutes and 20 minutes from the school is ~67% White, ~23% Black or African American, and ~9% Other. Out of these 6% self-identify Hispanic (Note: Hispanic population can be of any race). It is notable that within 10 minutes of the school the population is 45% White, 45% Black or African American, and 10% Other. The median family income for our geographic reach is between \$57,000 and \$64,000. However, between 11% and 7% of the families earn less than \$15,000. The families located within 10 minutes of the school earn the lowest income. It is our intention to ensure by recruitment and reliance on a solid transportation and lunch program that this school reflects this full regional population.

Equally, the RTHS will have a focus on STEM education, and so intends to target students who can – either under their own initiative or with interventions from the school community – advance in their abilities in the fields of science, technology, engineering and math. The standard metric for readiness for these fields is expressed as having completed Algebra 1 in middle school or by 9th grade. To quote the Microsoft Math Partnership’s 2006 report,

¹⁷ U.S. Census Bureau, Census 2000 Summary File 1 and 3.

Research Triangle High School

If we want to dramatically increase the proportion of students graduating from high school with high-level, globally-competitive skills, then we must dramatically increase the number of students who achieve proficiency in Algebra in their middle school or early high school years as a gateway to the advanced high school course work that is the driver of high school graduation, college readiness, and post-secondary completion rates.¹⁸

There is some discussion nationally and internationally that completion of Algebra 1 by 8th grade is the metric for success in STEM fields. We feel that admitting only students who had completed Algebra by the 8th grade would exclude too many students from this school, however. Instead, RTHS intends to admit students who are *ready or able* to take Algebra 1, or have taken it in middle school, making clear to applying families that – with our strong commitment to representing the entire region in this school – we will develop special programming and support for those students who have the ability to succeed in 9th grade Algebra but have not yet accessed that ability in themselves. Programs like AVID, and a pre-opening summer ‘Boot Camp’ can address this need, and also build community amongst cohorts of students. AVID, Advancement Via Individual Determination, is an elementary through postsecondary college readiness system that is designed to increase school-wide learning and performance.

This population – students ready or able to take Algebra 1 or beyond in 9th grade – represents 80.9% to 96.4% of the student population of the Triangle, depending on county (**Figure 7**).

¹⁸ http://www.air.org/focus-area/education/index.cfm?fa=viewContent&content_id=591&id=1

Research Triangle High School

Percentage of NC Students Taking Algebra I Enrolled By or Before Each Grade in 2010, by RTP School District (Excludes RTP Charters)

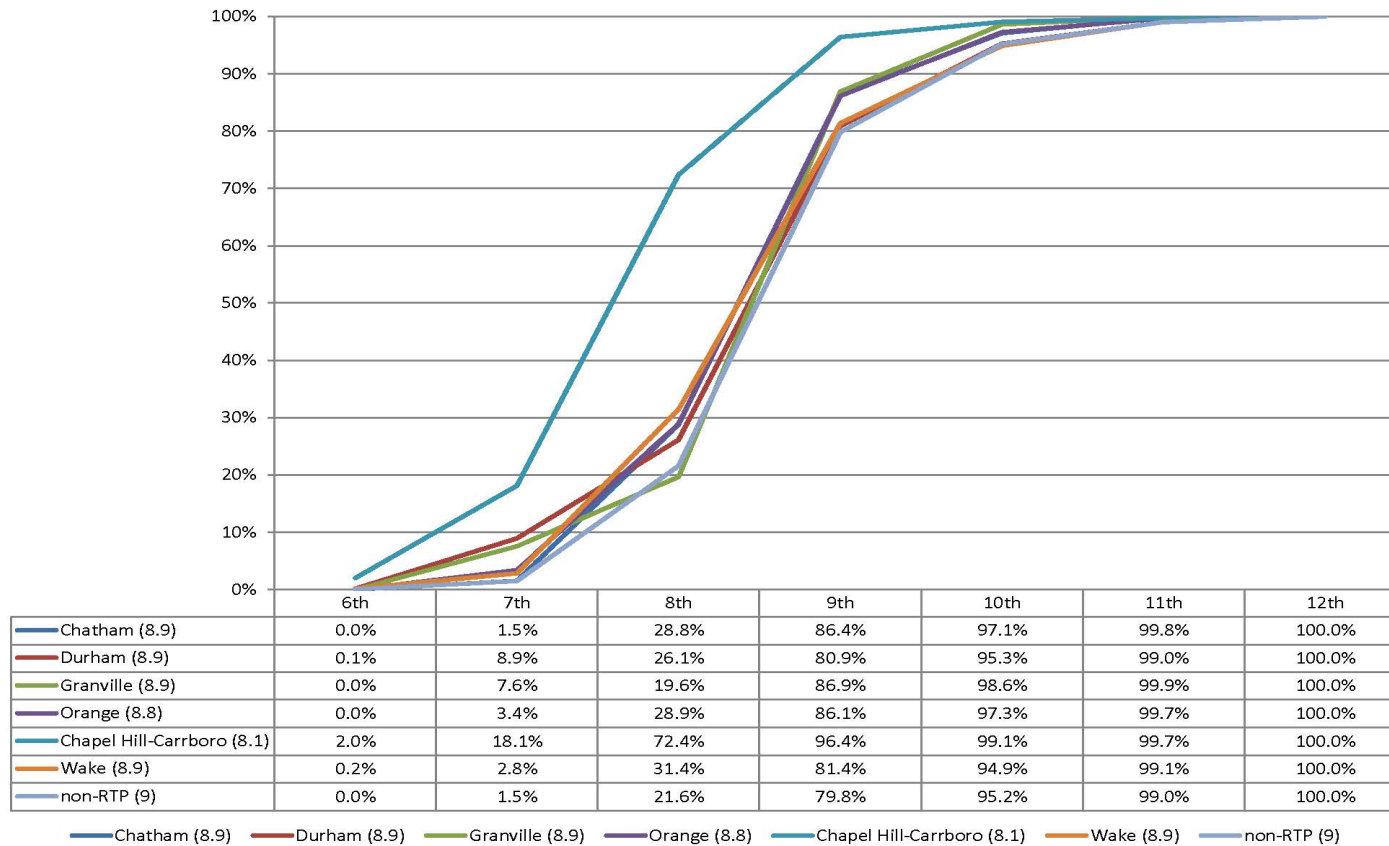


Figure 7. Percentage of students taking Algebra I enrolled by or before each grade from RTP school districts. Data source: Department of Public Instruction.

Research Triangle High School

Research Triangle High School

At the same time, the same research from the Microsoft Math Partnership points out that in order for students to be prepared for success in STEM fields, they must have access to a strong progression of math courses, and the RTHS will offer a full suite of high level math courses such as Calculus II and AP Statistics.

Lastly, we are mindful that citizens of the 21st century will more and more live in a global 'flat' world, and the liberal arts prepare us better than anything else to be thoughtful, open thinkers. It is our intention to ensure that students with broad literary and artistic interests can also attend and take advantage of this school, even if their only goal is to graduate as more scientifically literate citizens, rather than as future scientists. The school will offer a full complement of liberal and performing arts courses.

RTHS intends to work closely with several organizations with which the CSC has had long-standing relationships in order to enroll its target population of a broad representation of the Triangle region. CSC has worked for several years with Citizen Schools at Lowes Grove Middle School, and is partnering this year with Neal Middle School, a Race to the Top STEM school, to bring all its Biotechnology students to the CSC Lab. CSC also has seen hundreds of regional middle schoolers over its years, and has continuous relationships with their teachers. To that end, the RTHS intends to continue in these relationships and use them to communicate to diverse teachers and their students that the school is seeking enrollees from a broad spectrum of the regional population in order to ensure enrollment of students not easily accessible by traditional Internet and PTA communication.

This school will have a positive impact on the surrounding districts and region. The 2000 Census shows that 39,250 students are enrolled in public and private high schools within our targeted thirty-minute driving range. RTHS will enroll 420 of these students (which presumably are today a larger number than in the year 2000). We do not foresee enrolling this 1% of the region's population as being of significant financial impact, but do see the social and educational impact of a model and scalable school as important.

Research Triangle High School

VI.C. PROJECTED ENROLLMENT 2012-13 through 2016-17

In the following tables, please list for each year and grade level, the numbers of students that the school reasonably expects to enroll. In addition, please indicate any plans to increase the grade levels offered by the school. Explain the analysis utilized to determine these specific enrollment figures.

According to the following tables, RTHS will open with grade 9 in its first year, and expand by a grade level each year by adding a new ninth grade class annually. Note that we reserve the option to add a middle school in year 6 to expand our reach into disadvantaged populations, if the experience of the school community is such that middle school students are not coming well prepared to the school. Refer to the chart below.

RTHS is beginning with a targeted headcount of 160 students to allow for sufficient cash and revenue to initiate the broad programmatic needs of a high school – arts, athletics, and IT needs. At the same time, it is expected that key coordination roles, such as athletics and extensive IT, will be supplied by parent and/or community volunteers until the school reaches a headcount and revenue level sufficient to support bringing full-time staff positions for these roles. This headcount will also allow for any attrition in the start-up years of the school. Attrition is forecast aggressively for the first four years, based on experience with other start-up charter schools. Gaps in upper classes (grades 10, 11 and 12) will be filled with a handful of upper-class applicants each year, if space is available. An incoming class of 105 students is targeted for each new year to reach the targeted school size of 420 students, an optimal small school size for community building, and a low teacher-student ratio of 21 per class.

School Year	Grade Levels	Total Projected Student Enrollment	Year Round	
			YES	NO
First Year	9	160		X
Second Year	9 & 10	250		X
Third Year	9, 10, 11	330		X
Fourth Year	9, 10, 11, 12	420		X
Fifth Year	9, 10, 11, 12	420		X
OPTIONAL: Sixth Year	6, 9, 10, 11, 12	470		X
Seventh Year	6, 7, 9, 10, 11, 12	520		X
Eighth Year	6, 7, 8, 9, 10, 11, 12	570		X

Table 6. Projected enrollment for first eight years of RTHS.

Research Triangle High School

VI.G. MARKETING PLAN (GS 115C.238.29F(g)(1-7))

Marketing to potential students and parents is vital to the survival of a charter school. Reaching the full capacity for enrollment will be critical to obtain the necessary financial resources to keep your school viable and operating efficiently. In addition, it is required by law that charter schools provide equal access to all students. Read the charter school State Statute regarding admissions GS 115C.238.29F(g) (1-7) carefully. Describe how the board will market the school to all populations (including various community ethnic groups, teachers and other employees, and the general public) to ensure that the school fully complies with the State Statute to mirror the diversity of the local education agency.

Development of the School Plan:

The following meetings were held over the past year to talk about this proposal with members of the public to ascertain the level of public interest in the proposed charter school. All gave many helpful, insightful suggestions and shared their interest in the furthering of the idea of a STEM school joining the Research Triangle Park community.

January - March 2011

Bob Winston, RTF Board, President,
Winston Hospitality
Ginny Bowman, RTF Board
Bill McDiarmid, Dean, UNC CH School of Education
Todd Roberts, Rick Stone, Chancellor & BOD Chair, NCSSM
JOBS Commission, presentations
Kelly Leovic, EPA
Erika Reid, NIEHS
Bill Shore, GSK
Brent Ward, RTI
Don Holzworth
Steven Goldsmith, Syngenta
Adam Monroe, Novozymes, CEO
Ed White, Field2Base, CEO
Annette Lucas & Elizabeth Altman, moms
Jill Ullman & Tracy Gilbert, Citizen Schools
Steve Pearson, IBM
Karl Rectanus, NC STEM
Ted Deutch, Sandoz
Millie Chalk, Duke Energy
Tom Carroll, NCTAF

April – June 2011

Thomas Vaidhyan, Aten
Missy Sherborne, DonorsChoose
Gov. Hunt, Womble Carlyle
Dan Gerlach, Golden Leaf
Millie Tan, Quintiles
NCSSM staff
Monica Griesdorn, Michele Terrell & Gail Worthington, moms
Carolina Biological Online Division
Walter Dalton, Lt. Governor
Mike McLaughlin, Lt. Gov. staff
Kimberly Reynolds, Lt. Gov. staff
Dick Daugherty, RTF Board
Liz Rooks, RTF CEO
Barnett Berry, Center for Teaching Quality
Daniel Riley, Teach for America, Asst ED
Bill Greenlee, The Hamner Institute, CEO
Abhi Muthiyan, TiE
Judith Cone, Chancellor's Office, UNC CH
Tricia Willoughby, NCBCE/SBE
Tom Bradshaw

Research Triangle Foundation Board of Directors
Biogen Idec Foundation Board of Directors

From these meetings we developed the vision and mission for the school, moving from a mere idea proposed by RTP to this concrete proposal. In addition, we collected letters of support from Research Triangle Foundation, Biogen Idec Foundation, NC School of Science and Math and UNC School of Education. These are included in **Appendix D**.

Research Triangle High School

Marketing of the School:

RTHS has a multi-level plan to attract employees and students from a broad background. The school will launch an extensive public information campaign that includes: press releases to print, online, radio, and television outlets; a school website and Facebook page; job websites and open houses for potential teachers/staff; recruitment flyers to middle schools, public libraries and community centers; and media interviews. In addition, RTHS will build on already established relationships with area educational organizations, research collaboratives, and corporate partners. Specific targeted communications will ensure that information about the school goes equally to families in traditionally underserved communities as to those easily reached by mass communication. Each year in the fall the School Leader will present to the Board the diversity and socioeconomic status statistics for the newly enrolled school population. Based on that information, the Board and school leadership will modify the plans for school marketing communications and recruitment events and plans for the coming winter. These efforts will ensure all ethnic groups are provided the same opportunity for school enrollment.

A more detailed plan is below.

November 2011

- Informational open house for prospective teachers and school leaders
- Information about the proposed STEM school on Contemporary Science Center's website, Facebook page, and email newsletter.

January 2012

Press releases about the new school and ongoing news updates:

- To major and minor print and online news outlets in the five-county area (Durham, Wake, Orange, Granville, and Chatham) from which the school intends to draw. Both English and Spanish language outlets will be targeted.

Press releases/Request for Public Service Announcements:

- To radio and television stations in the five-county area.

Press releases and recruiting flyers to:

- Companies & organizations in the Research Triangle Park and neighboring towns that collaborate with and/or support the Contemporary Science Center. (Ex. Museum of Life + Science, Citizen Schools, Teach for America, Faculty Advisor teachers & their colleagues)
- Area university science education programs, NC Science Teachers Association
- Middle schools in the targeted towns/counties including Lowes Grove Middle School, Neal Middle School
- RTP administrative office, for the RTP.org website's news page

Research Triangle High School

Public invitation events for:

- Parents of Citizen Schools/Teach for America students
- Parents at RTP companies

Recruitment flyers to:

- Targeted public libraries, city and county community centers

Participate in Carolina Parent Camp & Education Fair (February at Cary Academy)

Establish school website with timely updates, forms, FAQ.

Social Media:

- Create Facebook page for school.
- Announcements to LinkedIn groups such as RTPconnected, LinkedIn Triangle
- Guest blog post for RTP.org and others.

Media Mentions:

- Solicit interview opportunities with local reporters/programs that cover education and state news

Ads--March:

- Carolina Parent

Signage for new school on building and at road.

Research Triangle High School

VI.H. SCHOOL AUDITS

VI.H.1. PROGRAM AUDITS GS 115C-238.29B(b)(6)

*Describe the procedure and method for evaluating the overall effectiveness of the proposed charter **school program as related to the mission of the school.***

At RTHS, our mission is to **increase access** to globally competitive STEM education for students and teachers across North Carolina, by **incubating, proving and scaling innovative models of teaching and learning**. To evaluate our effectiveness with respect to our mission, we will examine each of the proposed points in our mission.

Increasing Access:

Our first program evaluation will center on the school itself and our ability to increase access to a strong education for the students physically enrolled at the school. We will look at measures like full enrollment each year, student performance on End-of-Course tests, diversity of the student body, and numbers of students on the waiting list, as indicators that our model is successful locally and that demonstrate demand for our educational programming. We will also look at students' advancement through coursework over their four years at the school, to assess whether students are accelerating in their learning across more than four years of material. Our ability to track students from their first pre-test through final performance in senior year will be critical to this overall program evaluation. Attention will also be paid to student transfers out of the school, and we will develop a list of standard reason metrics for transfer in order to attempt to capture any attrition effect.

Incubating:

In order to evaluate our effectiveness with respect to incubating innovative models of teaching and learning, there will be a yearly report on the overall progress of our programs (PD, Teacher Residencies, new Flipped content development, Learning Teams, etc.) to the Board by the School Leader. The School Leader and faculty will be expected to be continually self-examining their effectiveness and annually reflecting upon, improving and summarizing their thoughts on their internal programs. This evaluation will help in the evolution of these programs and to meet changing student and staff requirements. At RTHS, we strive to continually explore, test and develop new programs, both student, staff and teacher-oriented; therefore these new developments will be evaluated as they come through the school.

Proving:

A number of methods will be used to prove that our innovative models of teaching and learning are effective. First, RTHS will maintain a database that collects information on student plans after graduation, which may include numbers of students accepted to college, which colleges, and how many are pursuing STEM programs. This is critical as one of our first goals for student achievement is to produce literate graduates ready for college through an innovative, college-preparatory curriculum. Second, at RTHS students are preparing for the 21st century workforce; therefore, numbers of students accepted to internships, how challenging the internships are and where they are located will be collected.

In order to assess whether student's learning has been accelerated such that they cover more years of material in their four years of high school we may employ software such as the Education Value-Added Assessment System (EVAAS) to track student achievement. Formative

Research Triangle High School

and summative assessments will be measured for each student including End-of-Course and AP test results. Student assessments will be critical to assessing whether the innovative methods, tools and experiences being used at RTHS are indeed effective ways of teaching that should be scaled to other teachers and schools statewide.

Another method to prove that our model is working is to track the change in the number of STEM volunteers each year. An increase in STEM volunteers working in our Learning Teams may indicate a growing interest and appeal in joining such a teaching team. In addition, by tracking the change in the number and types of support (e.g. financial, offering internships, partnerships) from corporate, non-profit or community groups, may indicate trends in their commitment to our mission and the value that they see in it.

A fifth measurement for effectiveness of our programs will be to measure our programs against the upcoming State Board of Education STEM attributes. It will be our goal to achieve the highest ranking on that emerging list of attributes for a STEM program.

Scaling:

We will track the number of teachers involved in our school from outside the school faculty – in-serve placements, new graduate placements, Teacher Residents from rural schools, and teachers attending any workshops we hold. We will endeavor to follow these teachers and evaluate not just the numbers of teachers who come through our programs but how they make use of their time at RTHS in their own classrooms, the impact that their time with us has had on their pedagogy and their students. We will also track the involvement of teachers post-PD in our virtual Learning Teams, both for depth and longitudinal involvement.

We will use online data to track the usage of our evolving online OpenSource course content as a measure of the adoption of our material by a broad constituency, keeping data on the visits to and download of that material via analytics.

If funding permits, after 3 years, RTHS may contract with an interdisciplinary team from local universities to conduct a program audit. This 360-degree review by an outside university team would be invaluable to determining the school's overall effectiveness both internally and externally and will be prioritized in the Development plans of the school.

VI.H.2. FINANCIAL AUDITS GS 115C-238.29F(f)(1)

Describe the procedure and method for conducting an independent financial audit for the proposed charter school. Give the name of the firm approved by the NC Local Government Commission (GCC) that will conduct the audit. Include the complete mailing address, telephone number and fax number.

The Contemporary Science Center has used the services of the firm below for its tax preparations and a financial audit for several years. The firm is approved by the GCC and is agreed to be the auditor for the school. The Board of Directors, through its Treasurer and Executive Team, will contract annually with BT&R at the close of the school year for an audit which will be reviewed by and presented to the full board at a winter meeting.

Research Triangle High School

Jim Black
Batchelor, Tillery & Roberts, LLP
3605 Glenwood Avenue, Suite 350
Raleigh, NC 27612
Telephone: 919-787-8212 x102
Fax: 919-783-6724

VII.I. HEALTH AND SAFETY REQUIREMENTS (G.S. 115C-238.29F(a))

Describe how the school plans to adhere to the requirements of the health and safety laws and regulations of the federal and state governments. Address how the proposed charter school will meet the following requirements:

• Safety

RTHS is committed to the health, safety and well-being of all RTHS staff and students. RTHS will comply with all health and safety standards required by the Federal and State regulations as well as the local school administrative unit. RTHS will train staff and provide all necessary measures to comply with these standards. RTHS will have an Emergency Response Plan and all staff will be trained in safety policies. The initial school policies will include and will be amended as needed:

- The campus will be kept secure by requiring visitor sign-in and identification badges.
- Parents will not be allowed to drop their children off at school in the mornings until a designated time so as to ensure proper supervision.
- First aid supplies will be kept in each classroom.
- Any medications that must be administered to students will be kept in a locked location.
- RTHS will grant access to local health and fire department officials for inspection of the premises or operation of the school.
- Each RTHS employee, volunteer, contractor, board member or any other individual deemed to have access to students will be required to submit a criminal background check and furnish a criminal record summary before employment according to GS 115C-238.29K.
- An Emergency response plan will be developed for Board approval to assure policies for responses to emergencies and natural disasters, including fires, hurricanes, and tornados. The school may contract for a text-based alert system for families.
- RTHS will comply with all policies set forth for Local Safe School Plans under GS 115C-105.47.
- RTHS will strictly function as a tobacco free institution in accordance with GS 115C-407.

• Immunization of Students

RTHS will comply with all State and Federal immunization requirements. RTHS will require that all students have been immunized prior to the beginning of classes with their childhood records up to date. Parents will be asked to provide records of completed immunizations at the time of enrollment. Immunization records will be reviewed by an appropriate staff member. RTHS will

Research Triangle High School

outline all required immunizations and provide local health department resources when needed. Students who are exempt from immunizations and who provide a state-approved exemption will be considered in compliance.

- **Fire and Safety Regulations**

RTHS will be in full compliance of all Federal, State and local fire and safety regulations. RTHS will comply with NC Fire Hazard regulations set forth under GS 115C-525. RTHS will meet the building (including appropriate fire control mechanisms, e.g. fire extinguishers, fire alarm system and/or sprinkler system) and furnishings code for fire and safety regulations.

Fire drills will be conducted once per month, tornado drills once per year, and lockdown drills annually. Teachers and students will be informed of all drill procedures. Evacuation plans will be posted in each classroom. All exits and stairways will be kept clear at all times to facilitate evacuation. All combustible materials such as cleaning supplies will be properly stored and maintained. The school's building will be available for inspection to appropriate officials for regular inspections and for any special inspections. The school will work with local officials to satisfy the recommendations relative to the abatement of the fire or safety hazard.

- **Food Inspections**

RTHS will not be providing institutional food service for students itself, but will ensure that any surfaces used for eating are kept clean and sanitized with appropriate cleaning materials.

- **Hazardous Chemicals**

RTHS will adequately train its employees who work with hazardous substances and to design and implement employee protection programs. Employee training programs will provide the necessary hazard information to school staff so they can participate in and support measures in place at school. OSHA's Hazard Communication Standard applies to schools because all workers may use or be exposed to hazardous chemicals. The school will have a written hazard communication program available to all staff.

At RTHS, all hazardous chemicals will be kept away from students. Hazardous chemicals will be clearly labeled, dated, and safely stored in a locked cabinet. Typically such chemicals are associated with science programming. Our science classrooms will have locked cabinets for storage and the proper safety equipment for use and accidents (eyewash, gloves, chemical spill kit, First-aid kit, shower station). Materials Safety Data Sheets (MSDS) will be kept with the person in charge of the chemicals and in the appropriate classrooms. Any such chemicals required for cleaning purposes will be contained in locked cabinets and only used by trained staff. During specific classes there will be times when students use chemicals for learning purposes. Students will be trained in safety procedures and labs will be equipped with the appropriate safety features (eye wash, goggles, fume hoods, safety kits, etc.) Students will dress appropriately to protect themselves and others. The labs will only operate when trained staff can oversee the appropriate use of the chemicals. Chemicals will be stored in locked facilities when not in use.

- **Bloodborne Pathogens**

RTHS will act in accordance with OSHA's Blood-borne Pathogen Standard to establish an exposure control plan to minimize workplace risks. Blood-borne pathogens refer to pathogenic microorganisms that are present in human blood and that can cause disease in humans. These

Research Triangle High School

pathogens include, but are not limited to hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

RTHS will have a written Exposure Control Plan that is accessible to all employees. The Plan will include (1) designated job classifications, tasks and procedures which involve potential exposure, (2) indications of required engineering and work practice controls, and (3) specifications of necessary personal protective equipment (PPE). Safety gloves will be in all First Aid kits. Training to protect employees and students and reduce workplace risks of hepatitis B and HIV infection will include such topics as the following:

- Modes of transmission of blood borne pathogens
- Identifying hazards
- Prevention through environmental controls
- Handling contaminated syringes, laundry, and biomedical waste
- Proper use of PPE
- Instituting safe workplace practices and environmental controls
- Hepatitis B vaccine
- Proper “housekeeping” to avoid risks
- Post-exposure reporting

- **Diabetes care plans**

RTHS will follow the guidelines for individual diabetes care plans adopted by the State Board of Education under GS 115C-12(31). This will include following the guidelines recommended by the American Diabetes Association for the management of students with diabetes in the school. Procedures will be put in place for the development of an individual diabetes care plan at the written request of the student’s parent or guardian, and involving the parent or guardian, the student’s health care provider, the student’s teachers, the student if appropriate, the school nurse if available, and other appropriate school personnel. There will be regular review of the individual care plan. Diabetes information and staff development will be made available to teachers and other school personnel in order to appropriately support and assist students with diabetes.

- **Providing students in grades 9-12 with information on how a parent may lawfully abandon a newborn**

RTHS will provide students in grades 9 through 12 with information annually on the manner in which a parent may lawfully abandon a newborn baby with a responsible person, in accordance with GS 7B-500. This “safe haven” law allows the parent of an infant less than seven days old to voluntarily deliver the infant to certain people, without expressing intent to return.

- **Providing parents and guardians with information about:**

- **Meningococcal meningitis and influenza and their vaccines at the beginning of each year**
- **Cervical cancer, cervical dysplasia, human papillomavirus, and the vaccines available to prevent diseases**

RTHS will provide parents and guardians with information on meningococcal meningitis and influenza and their vaccines, in accordance with GS 115C-238.29F at the beginning of every school year. This information shall include the causes, symptoms, and how meningococcal

Research Triangle High School

meningitis and influenza are spread and the places where parents and guardians may obtain additional information and vaccinations for their children.

RTHS will provide parents and guardians with information about cervical cancer, cervical dysplasia, human papillomavirus, and the vaccines available to prevent these diseases. This information shall be provided at the appropriate time in the school year to parents of children entering grades 9 (through 12 if new to the school in later years). This information shall include the causes and symptoms of these diseases, how they are transmitted, how they may be prevented by vaccination, including the benefits and possible side effects of vaccination, and the places where parents and guardians may obtain additional information and vaccinations for their children.

Research Triangle High School

VI.J. CIVIL LIABILITY AND INSURANCE (GS 115C-238.29F(c))

State the proposed coverage for:

Comprehensive General Liability	\$1,000,000 per occurrence
Officers and Directors/ Errors and Omissions	\$1,000,000 per claim
Property Insurance	The appraised value of the building and contents
Motor Vehicle Liability	\$1,000,000 per occurrence
Bonding	Yes
Minimum amount:	\$250,000
Maximum amount:	\$250,000
Other	Workers' Compensation

See Resource Manual for Minimums required by SBE Policy.

VI.K. TRANSPORTATION (G.S. 115C-238.29F(h))

Describe in detail the transportation plan that will ensure that no child is denied access to the school due to lack of transportation.

RTHS is committed to enrolling a broad representation of the population in the greater Triangle region. To that end, the school has budgeted 3.4% of its revenue-per-student to allow for anticipated transportation and food needs of low-income students. The RTHS plans to work with the Triangle Transit Authority (TTA) to make use of their extensive network of established regional Triangle-wide bus-routes to provide free bus passes to students who need them, and hopefully to augment their routes with express buses for school students in disadvantaged communities. Research Triangle Foundation has a strong relationship with TTA and we expect to rely on this relationship to develop this plan. RTHS may also partner with other charter schools in the area that provide bus service, such as Joy Charter School, in order to make better use of capital equipment investments and achieve our mutual goals of ensuring access to these schools for low-income students. RTHS will also rely extensively on parent-volunteer-coordinated carpooling for those families that have the flexibility to carpool their students to school. These combined efforts are intended to ensure that no student is denied access to the school due to lack of transportation.

In addition, RTHS intends to develop a food plan that may include aspects of the following:

- Food brought in by the neighboring Radisson Hotel kitchen manager under contract; *or*

Research Triangle High School

- Lunches coordinated by parent volunteers to ensure all students have a healthy, affordable lunch equally and non-publically; or
- A student-run Café centered in the school that ensures all students have access to nutritious meals in the school day.

VI.M. LEA IMPACT STATEMENT

Pursuant to G.S. 115C-238.29B(d), the charter school applicant must submit a copy of the application to the LEA in which the school will locate within seven days of the submission of the application to the Office of Charter Schools. The LEA may then submit information or comment directly to the Office of Charter Schools.

Please attach to this application a return receipt, or other documentation, verifying the applicant's timely submission of a copy of this application to the LEA.

This school will have a positive impact on the surrounding districts and region. The United States 2000 Census shows that 39,250 students are enrolled in public and private high schools within our targeted thirty-minute driving range. RTHS will enroll 420 of these students (which presumably are today a larger number than in 2000). We do not foresee enrolling this 1% of the region's population as being of significant financial impact, but do see the social and educational impact of a model and scalable school as important.

VII. APPENDICES

You may include numbered and indexed appendices to provide additional information that you believe will assist the State Board of Education in the consideration of your application.

Appendix A: Contemporary Science Center Programming Details

Appendix B: Faculty Development Advisors Biographies

Appendix D: Letters of Support

D1. Biogen Idec Foundation

D2. Research Triangle Foundation

D3. NC School of Science and Math

D4. UNC-Chapel Hill School of Education

Research Triangle High School

APPENDIX A: Contemporary Science Center Programming Details

Description of Field Studies, Student Assessment 2010-2011 and Statewide Reach Data

CSC has developed Field Studies in most core subjects of high school science and mathematics. Field Studies provide in-depth exploration in a five-hour laboratory experience that intentionally augments the North Carolina Standard Course of Study. These are ‘field trips’ designed especially for high school classes whose teachers bring them to the Triangle to immerse the teens in contemporary science experiences. With a particular emphasis on the state requirement ‘Science as Inquiry’, and with content that augments the competencies in each high school subject area, every Field Study has been created uniquely to reflect the science of the partner company that helped to create it.

1. Biology - Inspire Pharmaceuticals Inc.: *Delivery of a Novel Cystic Fibrosis Medication*

Students are first made aware that Inspire has developed a novel compound to ameliorate pulmonary symptoms of cystic fibrosis. They are then challenged to explore the compound’s effects on mucus secreting cells and identify the best way to “deliver” the compound to lung cells. This experiment represents an actual early step in drug development protocol, and allows students to truly apply their classroom learning in genetics, cell membrane function and ion transport channels to a real-world problem being addressed in RTP today. Cell plates, pipetters, lab gear and Shodor Foundation’s DataFlyer are used.

2. Physics - Oriel Therapeutics Inc.: *Exploring Mechanical Waves*

Oriel Therapeutics has developed an innovative type of dry powder asthma inhaler for delivering certain drugs, which works by vibrating the powder. Physics students are given the challenge of determining how best to disperse a powder by vibration, using a simulation of some of Oriel’s work. Extensive web access for sound wave models and particle analysis; function generators and lactose powders are used.

3. Statistics/Advanced Functions and Modeling - Constella Group, Inc.: *Prevention of Blood Exposure in Paramedics*

Developed by a statistician and a medical researcher, the unit begins with an actual request from the Center for Disease Control in Atlanta. Students are set the task: How can paramedics be protected from exposure to blood at work? Students explore and apply (statistical) math in a real-world situation. Statistical software from the CDC and the actual dataset from Constella’s work are used.

4. Genetics – Syngenta, Inc: *Manipulating genes in plant embryos to prevent insect damage*

Learning the entire development cycle of a corn rootworm-resistant strain of corn, students model the gene transformation process with agrobacteria, examine results, and test for efficacy, using an industrial standard including regulatory approvals. Online protein models, corn embryos and agrobacteria are used.

5. Chemistry - Targacept/American Chemical Society: *Design of specific molecular targets*

Students learn of Targacept’s core technology, the understanding of neuronal nicotinic receptors, learned from RJReynolds’ research in nicotine. Then students test a variety of drug compounds to find the most effective one, modifying that drug’s chemical structure and see if its effectiveness can be improved. Students use data gathered from Targacept to prepare an

Research Triangle High School

argument for which of the compounds is worth funding. Extensive data analysis, pipetting, plates and NC's Computational Chemistry Server are used.

Student Feedback Survey Results 10-11

(% Agree & Strongly Agree on 5-pt Likert scale)

Question N=814	Biotech N = 480	Biology N = 183	Chem N = 84	Stats N = 39	Physics N = 28
This program has increased my enthusiasm for science lab work	71%	76%	76%	59%	89%
This experience has made me interested in discussing the subject area with friends or family	56%	58%	77%	69%	75%
Due to this program, I am interested in taking or planning to take additional classes in science	41%	46%	55%	46%	82%
I learned some things in this program that I can use in science class at school	88%	89%	97%	72%	86%
Because of this program, I can see a connection between classroom learning and applied science	87%	93%	90%	79%	89%
I could be a scientist	39%	48%	60%	51%	86%

Research Triangle High School

CSC History of Student Attendance by County and Field Study 2004 – 2011

County	Biology	Biotech	Chemistry	Physics	Sickle Cell	Statistics	Grand Total
Alamance	10	25					35
Alleghany				10			10
Beaufort				15			15
Caldwell	56	28					84
Chatham	33	128					161
Chowan		12					12
Cleveland			46		19		65
Columbus		13					13
Craven	16						16
Cumberland	9						9
Currituck	18						18
Davie	65	127					192
Durham	104	106		56	27	56	349
Forsyth	46						46
Franklin	37	51		10		10	108
Gaston	28						28
Granville	89	77				23	189
Hertford	22						22
Hoke	18	38					56
Iredell	50						50
Johnston	27						27
Lee	22		10				32
Madison	24						24
Mecklenburg		9		16		50	75
Moore	22	48				22	92
Nash	18	13		6			37
New Hanover		26	24				50
Northampton	60	15					75
Onslow	12	18					30
Orange				7			7
Person	14					28	42
Pitt	25						25
Robeson	24						24
Rowan			18				18
Sampson	49	20					69
Scotland			17				17
Stanly			12				12
Surry		93		10			103
Vance		24					24
Wake	256	20	52	87			415
Warren	40						40
Washington		37					37
Wayne	44	100	90	11			245
Wilkes		12					12
Yadkin		15					15
Grand Total	1238	1055	269	228	46	189	3025

Research Triangle High School

APPENDIX B: Faculty Advisory Development Team Biographies

Kenny Felder

Kenny Felder has been a teacher at Raleigh Charter High School for thirteen years. He has taught Pre-Algebra, Advanced Algebra II, AP Calculus AB, AP Calculus BC, Calculus III, AP Computer Science, and AP Physics “C”. He graduated in 1988 from the University of North Carolina at Chapel Hill with degrees in Physics (“With Highest Honors”) and English. He is currently co-authoring a college-level text on Math Methods for Engineering and Physics. He lives in Chapel Hill with his wife and four children.

Judy Jones

Judy Jones has been teaching Biology, Human Biology, and occasionally Chemistry for over 30 years. She currently teaches at East Chapel Hill High School. She has also been an AVID teacher. She has been a Science Club adviser and Science Olympiad coach for many years. She has a B.A. in Biological Sciences and an M.A.T. from Stanford University. She is a nationally board certified teacher (AYA Science) and has done extensive work at the state level writing the goals, objectives, and support documents for the state biology curriculum. She is also a certified mentor teacher. Recent honors include the Presidential Award for Excellence in Science Teaching and the Southeastern Biologists Teaching Award. More importantly, she loves teaching and gets much satisfaction from the pleasure and achievement of her students in science.

Amanda Marvelle

Dr. Marvelle is the Education Director for the Contemporary Science Center (CSC). She teaches both day-long inquiry-based field studies and coordinates and manages the daily operations of the CSC. Dr. Marvelle has an extensive background in science education; most notably, she was an integral part of establishing North Carolina DNA Day and has taught students from elementary to adult in a variety of science topics. In 2010, Dr. Marvelle received her Ph.D. in Genetics and Molecular Biology from the University of North Carolina at Chapel Hill under Dr. Karen Mohlke. Her research focused on the Genetics of Obesity-related Traits and Lipoproteins in Filipino Women. Dr. Marvelle has ten published peer-reviewed articles (née Nave) and was awarded the University of North Carolina Integrative Vascular Biology Pre-doctoral Fellowship and the Sarah Graham Kenan and Hobgood Edwards Dissertation Fellowship. Prior to her graduate studies, Dr. Marvelle researched the genetics of pheochromocytoma at the National Institute of Child and Human Development, National Institutes of Health in Bethesda, MD as a Post-baccalaureate Intramural Research Training Award Fellow. She earned her Bachelors of Science in Biology with an emphasis in Computational Science from Wofford College in Spartanburg, SC.

Barbara Soloman

Barbara Soloman holds the BS in Mathematics (cum laude, Phi Beta Kappa) from the City College of New York, the BS in Mathematics Education (summa cum laude) from the North Carolina State University, and the MS in Mathematics Education from NCSU. She teaches Geometry and Calculus and Advanced Systems Theory (a course in critical thinking- not a math course) at Raleigh Charter High School. Previously, Mrs. Soloman was the associate director of the First-Year College at NCSU, where she also held other teaching and administrative posts and published papers on teaching and advising. She wrote the Soloman Learning Style Inventory (copyright 1992), which is used extensively by schools and businesses all over the

Research Triangle High School

country. She won the Outstanding Adviser Award from the National Academic Advising Association in 1994. She was the first recipient of the annual Outstanding Adviser award at NCSU, which is named after her.

David West

David West is passionate about strengthening his community through education and has dedicated his professional life to that passion. He teaches Spanish at Enloe High School in Wake County, NC. Mr. West joined Enloe's faculty as a Spanish teacher after 3 years at Raleigh Charter High School and 5 years as an instructor in English as a Second Language at Wake Technical Community College. Mr. West began his teaching career in Morelos, Mexico, where he taught ESL from 1995 to 1998 including two years at La Universidad Autonoma del Estado de Morelos (Morelos State University). Mr. West has also worked outside of the classroom as the Policy Analyst to Minority Affairs in the NC Office of the Governor, an interpreter/translator for various governmental and non-governmental public agencies in the USA and Mexico, and the State Project Director for the Leadership Conference Education Fund. Mr. West is originally from Raleigh, where he attended Stough elementary, Martin Middle, and Enloe High. He has a Masters in Public Policy Analysis from Duke University and he earned his BA in Spanish Literature at Earlham College.

Cynthia Clark Brown

Cynthia Clark Brown, DMA currently serves as Chair of Fine Arts, Director of Choral and Band Activities at Raleigh Charter High School. Dr. Brown received her BA from Campbell University and her Masters and Doctorate of Music from Southern Seminary in Louisville, Kentucky. As a founding faculty member of Raleigh Charter High School, Dr. Brown has witnessed the many stages of growth in a charter school and in the charter school movement in North Carolina. Under her direction, the Raleigh Charter High School choral ensembles and Concert Band have consistently received Excellent and Superior ratings. She resides in Raleigh with her husband, Samuel and their Bedlington terrier, Kirin. Her passions outside of music education include cooking and her support of the Seagrove potters.

Janice Smith

Janice Smith is the Professional Development Coordinator at Maureen Joy Charter School in Durham, NC. She works with K-8 teachers on individual and team professional development, and coordinates school PLCs. Janice spent three years working at KIPP: Gaston College Preparatory, two of which were as an Eastern North Carolina Teach For America Corps Member. She taught 7th & 8th grade technology, and 11th grade US & AP US History. She has Bachelor's degrees from American University in Washington, DC in Public Policy and Women & Gender Studies. She received her Masters Degree from NC State in Curriculum Development & Instructional Supervision and has spent two summers as a Mentor Teacher with Student U, a Durham non-profit working with local middle school students. Additionally, she has spent several years with Relay College, helping to build their database of instructional videos highlighting teacher best practices at some of NYC's highest achieving schools.

Asha Watkins

Asha Watkins is a language arts and *PRIDE* remediation teacher at East Wake Middle School. She co-advises the National Junior Honor Society, serves on the parent involvement committee and co-teaches with a special education teacher following the inclusion model and assessing

Research Triangle High School

data. For six years, she served as assistant principal at Y.E. Smith Elementary Museum School where she coordinated and managed the school's museum program.

Asha has also served as a tutor for The Mekye Center where she instructed learning differenced students in reading comprehension and basic math. At The Mekye Center, Asha collaborated with staff and parents to implement the Orton-Gillingham method of instruction. She was an English and language arts teacher at the Durham School of the Arts for five years. Her responsibilities included designing and implementing curriculum, daily lesson plans for upper classmen, supervising the junior class council, and acting as preceptor to a novice teacher. Asha also worked as a curriculum designer for Durham Public Schools, co-designing and teaching curriculum for the novel *The Year of Impossible Goodbyes* to middle school teachers across the district. In this capacity, she also co-created, implemented, and supervised high school remedial English curriculum. Asha received a B.A. with honors in English from Spelman College, an Ed.M. in Teaching and Curriculum from Harvard's Graduate School of Education, and a MSA from North Carolina State University.

Eric Grunden and **Martinette Horner** are faculty development advisors and also serve on the Board of Directors. Their resumes can be found under Board of Directors resumes.

Research Triangle High School

APPENDIX D: Letters of Support

biogen idec FOUNDATION

October 24, 2011

Dr. Bill Harrison
North Carolina State Board of Education
State Board of Education
6302 Mail Service Center
Raleigh, NC 27699-6302

Dear Dr. Harrison:

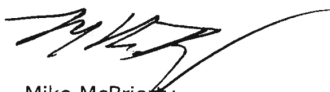
The Biogen Idec Foundation is pleased to provide this letter of support for the Contemporary Science Center's application for a STEM-focused high school to be located in the Research Triangle Park.

The Biogen Idec Foundation's mission is to improve the quality of people's lives and contribute to the vitality of the communities where Biogen Idec operates, with special emphasis on innovative ways to promote science literacy and encourage young people to consider science careers. We believe the concept behind this school holds tremendous potential to offer globally competitive education to the students it serves directly and beyond.

Based on the belief that engaging, relevant instructional approaches are influential in directing youth to science-oriented careers, the Biogen Idec Foundation is a long-time supporter of programming at the Contemporary Science Center. Our financial support first began in 2004 with a grant for operational support, which has continued each year since. In addition, the Biogen Idec Foundation awarded the CSC \$60,000 to support its move into a permanent lab facility at the NC Museum of Life and Science. Most recently, the Biogen Idec Foundation issued a \$50,000 challenge grant to support development funding for the school outlined in this charter application.

With a successful programming track record behind the Contemporary Science Center, strong interest from the RTP-area business community and a host of educational partnerships in place, the proposed school is on a path to have a transformative effect on science education in North Carolina.

Best Regards,



Mike McBrierty
Senior Manager, Public Affairs, Biogen Idec
RTP-Area Administrator, Biogen Idec Foundation

Research Triangle High School



October 21, 2011

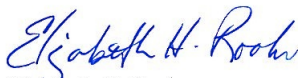
Ms. Pamela Blizzard
Executive Director
Contemporary Science Center
Research Triangle Park, NC

Dear Ms. Blizzard:

I am writing to confirm the Research Triangle Foundation's support of the proposal by the Contemporary Science Center to locate a STEM High School in the Research Triangle Park. Over the past 52 years, the Research Triangle Park has been instrumental in helping change North Carolina's economy from dependence on old line manufacturing and agriculture to increasing development of innovation industries. It is important that our high school students gain the skills that will enable them to excel in college in the areas of science, technology, engineering and math as these are the areas where the jobs will be in the future. The Research Triangle Park has continued to attract and keep companies in large part due to the strength of the labor force here in the Research Triangle region. However, we agree with others that our community needs to continue to replenish that labor force and we need to help raise the bar for education throughout North Carolina. The Board of Directors of the Research Triangle Foundation believes that the proposed STEM High School can help to do this. They were especially encouraged that the Contemporary Science Center has collaborated with the North Carolina School of Math and Sciences as you firm up plans for the charter school. We look forward to future reports of the progress made on this front.

To help further this initiative, the Board voted at its meeting on September 1, 2011, to support the proposal to join the Biogen Idec Foundation and provide a one-time grant of \$50,000 as a financial contribution for the planning for the new school.

Sincerely,



Elizabeth H. Rooks
Interim President and CEO

Research Triangle High School



NORTH CAROLINA SCHOOL
OF SCIENCE AND MATHEMATICS

Melissa Rihm Thibault
Vice Chancellor for Distance Education
and Extended Programs
North Carolina School of Science and Mathematics
1219 Broad Street
Durham, NC 27715

October 31, 2011

To whom it may concern,

As a leader in STEM education with a mission to advance public education in North Carolina, the North Carolina School of Science and Mathematics [NCSSM] supports the planned work of the Research Triangle High School and looks forward to opportunities to work with the school. For example, NCSSM's outreach programs include professional development for teachers and instructional services to rural and low wealth schools, audiences also identified by the Research Triangle High School as priorities. Additionally, NCSSM has been developing digital assets that can be used by teachers for instruction and by students for self-directed learning, and the Research Triangle High School plans to create and share similar content, contributing to build a more comprehensive collection. Finally, the close proximity of the Research Triangle School to NCSSM may facilitate collaborative teaching and learning activities, extending the reach of both schools by building upon existing and planned capacity and resources, particularly in the areas of research and mentorship.

Clearly, the planned work of the Research Triangle High School aligns well with the work of NCSSM, and I believe there is great potential for partnership and collaboration to further both our goals. Therefore, I endorse the planned activity of the Research Triangle High School. If I can be of further assistance please do not hesitate to ask.

Sincerely,

Melissa Rihm Thibault
thibault@ncssm.edu

A constituent institution of the University of North Carolina

P.O. Box 2418 • 1219 Broad Street • Durham, North Carolina 27715
919-416-2600 • Fax: 919-416-2890 • www.ncssm.edu

Research Triangle High School



UNC
SCHOOL OF EDUCATION

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

OFFICE OF THE DEAN

CAMPUS BOX 3500
PEABODY HALL
CHAPEL HILL, NC 27599-3500
<http://soe.unc.edu>

November 1, 2011

To whom it may concern:

UNC Chapel Hill's School of Education (SOE) supports the proposed scope of work and, in particular, the opportunity to partner with the Research Triangle High School. Key faculty within the SOE currently provide assistance and advice on research-based practices that are driving the planning and work for this school.

I foresee continued opportunities to partner with Research Triangle High School by way of our partnerships with rural school districts and our pre-service teacher preparation programs. The proposed teacher-residency program is one way the Research Triangle High School can scale-up inquiry-based instructional strategies in science and math by providing a supportive environment using the learning-teams model and virtual support for teacher residents. The SOE's outreach initiatives involve close relationships with school districts that enroll students from low-wealth families – a demographic this school proposes to target for the teacher residencies.

In addition to these partnerships, the SOE collaborates with the College of Arts and Sciences on the UNC-BEST program. UNC-BEST students receive strong content preparation as majors in the science and math as well as internships and practica in schools. These experiences, in conjunction with SOE coursework, qualify them to be licensed to teach in STEM subject areas.

High-quality internship experiences are critical to pre-service teachers' development. The development of the teacher-residency and learning-teams models at Research Triangle High School represent potential internship and practica placements for UNC-BEST students. These placements would facilitate further collaboration that could strengthen the high school's academic programs as well as provide SOE's pre-service students with a teaching and learning community that connects with their education coursework.

We welcome the opportunity to continue our conversations about these and other possible ways the UNC-CH School of Education can be a part of this promising incubator of innovative high school education.

Sincerely,



Bill McDiarmid
Dean & Alumni Distinguished Professor of Education

Research Triangle High School

VIII. SIGNATURE PAGE

The foregoing application is submitted on behalf of the Contemporary Science Center. The undersigned has read the application and hereby declares that the information contained in it is true and accounts to the best of his/her information and belief. The undersigned further represent that the applicant has read the Charter School Law and agrees to be governed by it, other applicable laws, and SBE regulations.

Print/Type Name: Dr. Gerald R. McCrain

Position: Chair, Board of Directors, Contemporary Science Center

Signature: *Gerald R. McCrain* Date: 11-3-11

Sworn to and subscribed before me this

3 day of November, 2011

Brenda J. Cox

Notary Public

Official Seal

My commission expires 9-5, 2016.

