



**Program of Studies
2010-2011**

City on a Hill Charter Public School

Graduation Requirements

4 years of English: All students graduate knowing how to write a well-organized and interesting essay in standard English, to read world class literature with understanding, and to speak effectively.

4 years of Mathematics: All students graduate being able to reason, communicate, and solve problems mathematically. All students study, Algebra, Geometry, Advanced Algebra, and Pre-Calculus. Students may also choose to take AP Calculus.

3 years of History: All students graduate knowing how to defend their views on historical and contemporary issues, and to analyze/appreciate important primary source documents. All students study Civics, World History, and U.S. History. Students may also choose to take AP U.S. Government and Politics or Constitutional Literacy their senior year.

3 years of Science: All students graduate able to understand scientific aspects of civic problems, and to design, perform and analyze scientific experiments and understand scientific data. All students study Unified Science, Biology, and Chemistry, and conduct labs in the specified subject area. Students may also take Physics or AP Environmental Science in their senior year.

3 years of Spanish: All students graduate conversant in a second language.

Literacy & Numeracy: All students, regardless of academic standing participate in 3-4 years of literacy and numeracy tutorials. As a goal and assessment driven program, students meet with tutors in individually planned sessions, integrated into the school day. These skills support classroom instruction across subject areas, as well as important test such as CoaH proficiencies, the MCAS, and AP exams.

City Project & Community Service: All students graduate having successfully completed this capstone course at City on a Hill. The course requires extensive research of an identified local issue, a written paper encapsulating their findings, 100-hours of service at a related site, and an oral presentation of their results. Each year, all eligible students also register to vote and complete a community service Project.

Physical Education: Students graduate with a working knowledge of First Aid and the ability to practice healthy habits and meet personal fitness goals.

Town Meeting: The entire City on a Hill community gathers every Friday to discuss and debate important issues facing our school, our city, and our world. Each year, student advisory groups design, facilitate and moderate a town meeting debate. Town meeting is a required part of school, and we invite parents/guardians and members of the public to attend.

City on a Hill Charter Public School

2010-2011 Course Offerings

ENGLISH

English Department Essential Question – *How are we empowered by language?*

English Level I

English I is designed to teach to basic skills of reading, writing and speaking, and to provide English I students with a survey course on world class literature including the genre of the novel, poetry including epic, mythology, and drama. Students explore their identities and roots in an autobiography project and master the composition of a paragraph. Students participate in class and perform public speeches. In both writing and speaking, students are expected to increase their proficiency in vocabulary substantially. Students are expected to minimize mistakes in grammar, usage and spelling. As a reflection of our commitment to include all students, the department recognizes its obligation to identify and begin remediation of basic learning deficits.

Course Essential Question – *Who am I?*

English Level II

English 2 is designed to provide further instruction in the basic skills of Reading, Writing and Speaking, and to broaden the students' knowledge of world literature as well as literary terms and devices. In addition to the novel, drama and the short story, the English 2 curriculum focuses on poetry. Attention is given to aligning the curriculum with the Massachusetts Curriculum Frameworks and the MCAS exam.

Students participate in class and perform public speeches. Furthermore, students are expected to master the five-paragraph essay. In both Writing and Speaking, students are expected to substantially increase their proficiency in vocabulary. Students work to develop editing skills in order to minimize mistakes in Grammar, Usage, and Spelling. Students will also be introduced to the research writing process and will write a paper researching an issue related to the content of literature study.

Course Essential Question – *How am I included and excluded from my community?*

English Level III

English III is designed to foster increasingly analytical skills in reading; to require sustained unity, tone, and theme in writing; and to demand that students voice their opinions logically, persuasively, concretely, and at length. The English III curriculum focuses on more extensive works of literature and sustained writing assignments. Attention is given to standardized testing, the PSAT in the fall and the SAT in the spring. Students participate in class and perform public speeches. The writing required during English III will focus on literary analysis. Students are expected to write and speak using

sophisticated vocabulary. Students are also expected to comply with standards of modern English usage. Students will also advance their understanding of personal narrative through a college essay.

Course Essential Question - *How do my actions and attitudes determine my future?*

English Level IV

In this class, students will explore literature across cultures and time periods in order to understand how language empowers people to discover and contribute as individuals and as members of a larger community. With a particular focus on college preparation, students will also analyze and compare literary works as a product of a larger body of literature related to time period, location, race, gender, relevant criticism, and school of thought. Students will also enhance their reading, writing, and speaking skills through rigorous reading schedules, writing expectations, and college-level discussions. As in college, much of the preparation is completed outside of class, and regular meetings with the instructor are expected. The challenging reading list includes works by Sophocles, Shakespeare, Ellison, Hurston, Shelley, and Hawthorne. The final proficiency is a significant research paper that is a culminating synthesis of the students' work in City on a Hill's English curriculum.

Course Essential Question - *How is our understanding of culture and society constructed through language?*

MATHEMATICS

Algebra (Math Level I)

In Algebra 1, we will be learning a language – a language that serves as a gateway into higher education, employment, and basic problem solving in the surrounding world. The course content will be divided into the following units:

1. Data Analysis
2. Expressions
3. Equations
4. Inequalities
5. Ratios and Proportions
6. Probability
7. Graphs and Functions
8. Linear Equations

In this class, we will be opening an important door – leading to success on the MCAS and the SAT's, upper level mathematics and scientific exploration, collegiate-level work, and problem-solving in the professional world.

Course Essential Question – *How can I use math as a language?*

Geometry (Math Level II)

Geometry at City on a Hill is a full Geometry course with one unit of Algebra 1. This extension of Algebra 1 is critical because the MCAS is taken in 10th grade and the math section of this test includes both Algebra 1 and Geometry. The course will be divided into the following units:

1. Algebra 1 Extension
2. Basics of Geometry
6. Quadrilaterals and Other Polygons
7. Area, Surface Area and Volume

3. Segments and Angles
4. Parallel and Perpendicular
5. Triangles
8. Right Triangles and Trigonometry
9. Circles (time permitting)

Course Essential Question – *How can I use reasoning to measure and classify?*

Advanced Algebra (Math Level III)

The essential question in Advanced Algebra is: **“How can I use algebra to make predictions?”** We will be addressing this question through learning about different functions and models and exploring the following units:

- | | |
|--|--|
| 1. Linear Equations and Algebra Review | 5. Exponential and Logarithmic Functions |
| 2. Systems of Equations and Matrices | 6. Polynomial Functions |
| 3. Linear Functions | 7. Conic Sections |
| 4. Quadratic Functions | 8. Rational and Radical Functions |

Course Essential Question - *How can I use algebra to make predictions?*

Pre-Calculus (Math Level IV)

Pre-Calculus students learn to think like mathematicians through problem solving and conjecturing. The course builds on Algebra and Geometry and prepares students to take Calculus or another college math course. Course content will include rational functions, analyzing functions, sequences and series, trigonometry, a preview of calculus material including limits and derivatives, and, of course, POWs! This course is a good choice for students who are interested in developing skills necessary to do well on their college math placement tests.

Course Essential Question – *How can I think like a mathematician?*

AP Calculus (Math Level IV)

AP Calculus is the most challenging math course offered at City on a Hill. The essential question for AP Calculus is “Why is Calculus the study of things that change?” Students will answer this question by studying non-linear relationships from Advanced Algebra and irregular shapes from Geometry. There are two distinct branches of AP Calculus: differential and integral. In Differential Calculus, you will study the rate of change of all algebraic equations in the context of physics and business. In Integral Calculus, you will learn to calculate area and volume of non-geometric shapes, which is more applicable to our irregular world. Basically, Calculus is used in some ways to solve problems that Algebra and Geometry cannot. Students who plan to major in any science field, Business, Math, or Engineering will be required to complete Calculus 1 in college. By passing the AP Calculus test, students can earn college credit for Calculus 1 and fill that requirement for their major. In AP Calculus, students are expected to read and use college-level textbooks, complete 1 hour of homework every night and take a daily homework quiz. One POW will be required each quarter and every unit will end with a comprehensive hour-long assessment. **The mandatory pre-requisite course is Pre-Calculus. This course can be taken at City on a Hill from August 16 – 27 or at a different site pending approval from the Math Department.**

Course Essential Question – *Why is Calculus the study of things that change?*

HISTORY

Civics (History Level I)

Civics is a class about citizens in the United States. In this class we will study one main question. We call this the “essential question.” In each unit, whether we are studying the Revolutionary War or the United States justice system, we will answer and re-answer that essential question.

Course Essential Question - *What are the rights and responsibilities of citizens in the United States?*

U.S. History (History Level II)

This class traces the history of the United States chronologically, beginning with the first inhabitants of North America. This course seeks to provide a broad knowledge of U.S. History and attempts to incorporate the various perspectives of traditionally underrepresented groups. A key component of this course is to be able to identify the nature of historical "fact," with that of historical perception.

Course Essential Question - *Does money really make the world go round?*

World History (History Level III)

The goal of World History class is to teach you how to think critically by examining major events, documents, ideas, societies, and people of the world's past. To this end, we will try to understand *why* societies behave the way they do and what role individuals play in shaping the course that societies take. To help us answer these important questions, the majority of this course will be spent studying and analyzing revolutions in thought, culture, government, society, and technology.

Course Essential Question - *How we are affected by choices of societies and individuals?*

Constitutional Literacy (History Level IV)

The Marshall-Brennan Constitutional Literacy class is designed to teach the Constitution and the Bill of Rights using Supreme Court cases involving the rights of young people at school and in the juvenile justice system. The goal of the class is to teach students their rights and how to use their knowledge of cases and the Constitution to become effective democratic citizens. The class will be co-taught by Suffolk Law students and will involve a Moot court component.

Course Essential Question – *How does the Constitution assist citizens in gaining equality?*

AP Government & Politics (History Level IV)

AP U.S. Government & Politics is an intensive study of the formal and informal structures of government and processes of the American political system. This course is designed to educate students of the intricate system of our federal government and prepare students for the AP exam. Earning a 3 or higher on the AP exam can earn students college credit, and because of the high expectations, this class will be taught at an accelerated level. Articles from newsmagazines and current newspapers will be used periodically to discuss current events that apply to the principles of government. Students will be required to stay current on political issues, demonstrate their understanding of government functions, and connect them to present topics in the news. Expect daily homework. Homework will vary. It could consist of reading the chapter or supplemental materials, research, preparing for debates or simulations, writing assignments, and monitoring the media. Not all homework will be graded or collected, but it is an expectation that all work will be completed. Students will be required to do a variety of writing assignments including formal essays, timed writing, reflective writing, open response questions, and position papers. Students will be required to engage in several debates and simulations both formal and informal. Discussion will be a major focus of the class, so it will be an expectation that students be equipped daily to add thoughtful analysis within our discussions.

Course Essential Question - *Is the United States truly democratic?*

SCIENCE

Unified Science (Science Level I)

The goal of Unified Science is to build the math and science skill set of incoming students to proficient levels. In the first half of the year, through increasingly sophisticated investigations and measurements, students learn to design increasingly complex and accurate experiments. The focus on experiments continues as students enter three units on chemistry to discover the nature of atoms, molecular bonding, and the Periodic Table. In the second semester students learn the fundamentals of biology, starting with the characteristics of life and then continuing to ecology and evolution. This sets up for the students a solid foundation in the chemical and life sciences that will aid their understanding of biology and chemistry in subsequent courses.

Course Essential Question - *How do we use the scientific method to understand our world?*

Biology (Science Level II)

City on a Hill's Biology course includes the study of biochemistry, cells, genetics, evolution, and ecology. Because this course contains many laboratory exercises, students are able to connect their learning to their practical everyday experiences and lives. The course focuses on the molecular and cellular processes that occur in living things. Students study DNA, the genetic material of the cell, and learn its role in determining traits. Students also examine how Darwin's theory of evolution explains the change of organisms over time and life as we know it today. Through the study of ecology,

students also discover that all living things are interconnected and dependent upon one another. This course prepares students for the 10th grade biology MCAS in June.

Course Essential Question – *What is life?*

Chemistry (Science Level III)

City on a Hill's chemistry course includes the study of properties of matter, atomic structure and bonding, the periodic table, chemical reactions and stoichiometry, solutions, acids and bases, and equilibrium and kinetics. Because chemistry is central to our understanding of many other sciences, chemistry instruction includes links to actual applications to enable students to relate chemistry to their everyday lives and current events in science and engineering/technology. At the end of their study, students are capable of using sophisticated models and rigorous mathematical computations to make formal statements of principles of chemistry and understand their implications. They are able to apply their understanding in another science course, in a higher level of science or engineering/technology learning, or in the experiences they encounter.

Course Essential Question – *How do chemical reactions change the world?*

AP Environmental Science (Science Level IV)

AP Environmental Science is a full-year course designed to be the equivalent of a one-semester, introductory college course in environmental science. This course stresses scientific principles and analysis and includes a laboratory component. It is intended to allow students to undertake a more advanced study of topics in environmental science, or to fulfill a basic requirement for a laboratory science in college. The content of this course reflects what is found in many introductory level college courses in environmental science. The goal of this Environmental Science course is to provide students with the concepts required to understand the interrelationships of the natural world, to identify and evaluate the relative risks associated with environmental problems, to examine alternative solutions for resolving and preventing problems, and to become responsible citizens.

Course Essential Question - *How does a citizen ensure a high quality of life balanced with responsible resource use?*

Physics (Science Level IV)

Physics is a technical science course focused on explaining how matter behaves. It is divided into four major units. *Motion* describes how objects move, why frisbees fly only when they spin, and why racecars could actually drive on the ceiling of a tunnel. *Thermodynamics* is the study of how heat and energy are exchanged and used by materials and gases, and it explains why it only rains on one side of a mountain. *Electricity and Magnetism* explains how batteries make things move and why you should never put a magnet next to a computer. Lastly, *Waves* explores the nature of sound and light using laser beams, mirrors, and slinkies. This course is absolutely essential for students interested in careers in science, technology, engineering, or math. Colleges will expect to see it on transcripts. Physics also provides an excellent background for a deeper understanding of biology and chemistry, and both simple and complex machines. Examples include cars, air conditioners, ping-pong, spaceships, and the instructor's

favorite: how come your little sister is always able to open the pickle jar when you can't?
Course Essential Question – *How can we predict the outcome of physical interactions?*

SPANISH

Spanish Level I

In Spanish 1, you will begin to read, write and speak Spanish, as well as gain understanding of Spanish-speaking cultures. Major topics include the following: vocabulary (family, classroom objects, pronouns, greetings, and lots more), verb conjugations in the present and future tenses, geography of Spanish-speaking countries, the Inca Empire, and Spanish Festival.

Course Essential Question – *Why am I learning another language and culture?*

Spanish Level II

Bilingualism is an important part of City on a Hill. In Spanish II you will be learning how to read, write and speak a new language. You will learn to use the Spanish language, as well as gain understanding of Spanish-speaking cultures. Major topics include the following: Vocabulary (sports, weather, food, family, vacation, etc.); verb conjugations in the present, past and future tenses; reflexive verbs; Hispanic culture; and historic Hispanic Dictators.

Course Essential Question – *Why am I learning about the Spanish language and culture and how can I use it?*

Spanish Level III

This year you will improve your learning how to read, write and speak a new language. You will learn more to use the Spanish language, as well as gain understanding of Spanish-speaking cultures. This is the last and the highest level of the Spanish course in City on a Hill. Major topics include the following: vocabulary (activities, travels, natural environment, news, etc.); verb conjugations in the preterite, future, conditional, imperfect, present perfect tenses; indicative and subjunctive moods; Hispanic art, celebrations and traditions; and the history of Hispanic countries

Course Essential Question – *How do we express our opinions in Spanish?*

CITY PROJECT

City Project is the capstone class at City on a Hill. Students learn how and why to exercise their rights as American citizens. The content of the class changes from year to year, as we look at whatever political issues are currently being debated in the world. This year we looked at immigration reform, the new health care bill, the Mayoral election, the war in Afghanistan, the special senatorial election, the energy crisis, education reform, and the economic downturn. Once students have a solid understanding of how to research, debate, and write analytical papers on current events, they choose a

political issue in the city of Boston that is of interest to them and conduct independent research on it. In addition, students find internships for themselves so that they can get 100 hours of unpaid, hands-on experience working in their research field. So, for instance, a student studying the problem of teen pregnancy might work in a hospital, a school, or at a Planned Parenthood clinic. At the end of the class, the students are well versed in several current events, and they are experts of their chosen subject. The proficiencies for this course include a standard exam, a research paper, and a PowerPoint presentation of the findings of the research paper.

Essential Question - *How and why must I exercise my rights and responsibilities as an American citizen?*

STUDENT SERVICES AND COLLEGE COUNSELING

Junior Seminar

Junior Seminar is designed to help juniors understand the responsibilities they will face during their senior year and beyond as they apply to colleges, submit financial aid applications, and enroll in the post-secondary program of their choice. Students will learn about the benefits of attending college, types of higher education institutions, and the courses and majors they may want to consider as undergraduates. Additionally, students will begin to determine the way college admissions officers will evaluate their applications, and will also learn about connecting with college representatives through campus visits and interviews. By the end of the year, students will fully understand their responsibilities throughout the college and financial aid application processes, and they will create an initial list of colleges to consider applying to, as well as draft a college admissions essay. Students will be assigned homework regularly, and assignments will focus on practicing reflective writing.

Essential Question – *How do I choose and gain admission to the post-secondary programs that best align with my future goals?*

Senior Seminar

Senior Seminar is designed to help seniors understand and negotiate the college application process and the transition to college life. Students will learn about different higher education institutions including distinguishing characteristics of each. Should you attend a public or private college, a four-year institution or community college, a large university or a small liberal arts college? These questions and others will help you make an informed decision about selecting the best fit for your academic needs and interests in the colleges you will apply to this year. Once you have selected your colleges, we will organize all the required materials for applying to the institutions and completing financial aid applications. The class may take field trips to educational institutions, host representatives from colleges and universities as guest speakers and have workshops on topics such as mock application reading and the college essay. In addition, you will be given out-of-class assignments that will help you reach our school goal of every senior completing college applications, financial aid applications, scholarship applications and will support you in developing the skills to be a successful college student. This course

will also focus on writing the college essay, scholarship searches, financial aid assistance, college interviewing skills, personal financial accountability and self-advocacy. This class meets two days each week.

Essential Question – *How can I shape my future?*

Intervention Classes

City on a Hill has a variety of intervention programs in place at the school in order to accommodate all students. CoaH's Special Education Services department (the Learning Network, or LN) offers inclusion, pull-out, academic support, reading, transition programming, and behavioral services (social skills groups, self-esteem and anger management groups, interventions, emergency passes, etc.) Through CoaH's English Language Learner (ELL) Services, identified Limited English Proficient (LEP) students receive extra instruction on oral language, reading, writing, and pronunciation skills four days a week. The instruction is based on the Massachusetts Curriculum Frameworks for English Language Proficiency Benchmarks and Outcomes (ELPBO) and boosts students' proficiency in oral language skills (through presentations and class discussions), reading skills (through practicing reading comprehension strategies and vocabulary development), and writing skills (through the acquisition of grammar rules and long composition practice). Additionally, some students are pulled out for extra help on pronunciation. All LEP students receive Sheltered Content Instruction in the form of push-in support.