CAMBRIDGE HARVARD SUMMER ACADEMY
Inquiry In The Disciplines

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ENGLISH COURSES

IDENTITY: BEING THE OTHER, BECOMING MYSELF

The pervasive theme for English 9 is identity. Through a variety of genres (i.e. memoirs, autobiographies, biographies, primary source documents and informational text), you will examine issues of national, cultural, familial and group identity. You will also be writing in a variety of genres, composing longer expository and literature-dependent essays that compare and contrast texts, as well as personal memoirs. By creating an English Language Arts centered portfolio, you will document your evolving skill and identity as a reader, writer, learner and person. Students will continue to document and evaluate their writing, reading, and personal growth by updating their English Language Arts portfolio. Students will complete a final project completed over the course of the five weeks that will be presented at a public exhibition on Wednesday, August 12th, 2015.

Grade Equivalent: English 9 | **Eligibility:** Grade 9 | **Enrollment Options:** Credit Recovery, Enrichment/Elective

LITERATURE AND LIFE

Students in the Literature and Life unit will deepen their understanding of their lives through the exploration of realistic fiction. Through the analysis of excepts of the benchmark book The Namesake by Jhumpa Lahiri and other works of literature, students will study the elements of literature (exposition, conflict, rising action, climax, falling action, resolution, and denouement) and see how authors structure their writing using Freytag's Pyramid. Students will then incorporate the literary elements into their own writing, while implementing the steps of the writing process (prewriting/drafting, composing, revising, editing, and publishing). In addition, students will read closer to identify deeper elements of the author's craft, including dialogue, foreshadowing, imagery, figurative language, and syntax, and strengthen their own writing approach. Throughout the unit, students will share and peer revise/edit with partners, in small groups, in one-on-one conferences, and with the whole class, while keeping their literary analysis and creative writing in their journals. At the end of the unit, students will present their own realistic fiction story during a writer's convention, where visitors will play the role of agents and publishers. During the convention, student authors will share their story ideas in a multimedia display with visuals such as illustrations and story boards, excerpts from their story, and thematic soundtracks. The convention will be held on Wednesday, August 12th, 2015.

Grade Equivalent: English 10 | **Eligibility:** Grade 9-12 | **Enrollment Options:** Credit Recovery (Grade 10), Honors Prep (Grade 9), Enrichment/Elective (Grade 10-12)

EXAMINING THE AMERICAN DREAM

What is the American Dream? To what extent is it achievable for every American? In this course students will explore the realities of attaining the American Dream, individual freedom and responsibility, oppression in America, and other themes. Students will continue to find their voice and purpose as writers in response to critically reading a variety of texts. Students will study fiction and non-fiction texts in depth and be expected to demonstrate high level analytical, organizational, and

critical thinking skills. Students will complete a final project over the course of five weeks to be presented at a public exhibition on Wednesday, August 12th, 2015.

Grade Equivalent: English 11 | **Eligibility:** Grade 10-12 | **Enrollment Options:** Credit Recovery (Grade 11), Honors Prep (Grade 10), Enrichment/Elective (Grade 10-12)

HISTORY COURSES

AROUND THE (MODERN) WORLD IN 25 DAYS

In this course students will examine the historical trends and processes that have come to define the modern age. First, students will learn about Britain's role in the Industrial Revolution and how industrialism and imperialism became interconnected. Next, students will explore the role of Russia in the World Wars and the roots of Cold War conflict. Then it's on to Vietnam to revisit issues of colonialism, communism, and independence. Finally, students will explore India to understand how the "crown jewel" of the British Empire dealt with issues of decolonization and development. In this course, students will engage in frequent reading, writing, discussion, and debate, with attention to considering multiple perspectives, making evidence-based arguments, and thinking geographically. The course will culminate in a final project that will be presented at a public exhibition on Wednesday, August 12th, 2015.

Grade Equivalent: World History II | **Eligibility:** Grade 9 | **Enrollment Options:** Credit Recovery, Enrichment

BACK TO THE FUTURE: LEGACIES OF EARLY AMERICAN HISTORY

In this course students will examine the historical and intellectual origins of the United States during the pre-colonial through Civil War eras. They will learn about the various cultural, social, economic and political changes that have taken place on the land that we now know as the United States and understand how the country we live in today, including the key ideas of the U.S. Constitution, America's westward expansion and the establishment of political parties, is a legacy of those changes. Additionally, students will learn about the growth of sectional conflict, how sectionalism led to Civil War and the consequences of the Civil War, including Reconstruction. Students will complete a final project completed over the course of the five weeks that will be presented at a public exhibition on Wednesday, August 12th, 2015.

Grade Equivalent: US History I | **Eligibility:** Grade 9-12 | **Enrollment Options:** Credit Recovery (Grade 10), Honors Prep (Grade 9), Enrichment

MOVERS AND SHAKERS: MODERN AMERICAN HISTORY

With a lens of the interaction between individuals and society, students will analyze the role of people in affecting change in modern US History. Throughout the course, students will explore the motives, actions, reactions, and consequences of individual "movers and shakers," and in doing so, will practice empathizing and taking on various historical and contemporary perspectives. Units of study will include the causes, actions and effects of various labor, civil rights, and contemporary movements. Additionally, students will focus on analyzing primary sources, undertaking original research, and

writing expository as well as compare/contrast essays. Their work throughout the five weeks will culminate in a final project that will be presented at a public exhibition on Wednesday, Wednesday, August 12th, 2015.

Grade Equivalent: US History II | **Eligibility:** Grade 10-12 | **Enrollment Options:** Credit Recovery (Grade 11), Honors Prep (Grade 10), Enrichment

POLITICS, PROTESTS, AND SOCIAL CHANGE

Are there rights to which every person is entitled? If so, what are they, and what should be done when those rights are denied? In this course, students will examine the ways in which people, both as individuals and organized in groups, have agitated for social change in recent history. We will begin by exploring how the concept of "rights" is defined, both in the United States and on a global scale. Using this framework, we will then study cases where people's rights were violated and investigate how those violations were challenged. Units of study will include the African-American Civil Rights Movement and Women's Rights Movement, among others. Particular focus will be given to primary source analysis, differing perspectives, making evidence-based claims, and applying lessons of past movements to modern activism. Students will complete a final project completed over the course of the five weeks that will be presented at a public exhibition on Wednesday, August 12th, 2015.

Grade Equivalent: US History II | **Eligibility:** Grades 9-12 | **Enrollment Options:** Honors Prep (Grade 10), Enrichment

BEING AMERICAN: NARRATIVES IN FILM

Through the use of contemporary American films, students will uncover the various narratives that are created, perpetuated, and changed about what it means to "be American." Throughout the course students will participate in critical analysis of a variety of films and also uncover their social context prior to and implications after their acclaimed success. In doing so, students will uncover the various viewpoints and expertise that contribute to the creation of a film, as well as think critically about the messages and narratives about being American that the film industry has and can impart on our society. Students will present a final project, explored over the course of the five weeks, at a public exhibition on Wednesday, August 12th, 2015.

Grade Equivalent: n/a | **Eligibility:** Grades 9-12 | **Enrollment Options:** Enrichment; Humanities

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SCIENCE COURSES

THE MICROSCOPIC TRUTH

This course explores biology in a rigorous way using the principles of Evolution and Ecology: patterns and products of change in living systems and the interdependence of all living things; Homeostasis: within cells and body systems; Energy, Matter and Organization: relationships in living systems; Reproduction and genetics: structure and function of DNA, protein synthesis, meiosis, and principles of dominance; growth and differentiation: the cell cycle. Students approach each principle through a variety of hands on activities and experimentation. Students will develop skills in design of experimental procedures, collection and analysis of data, and written and oral presentation. They will also conduct experiments of their own design to make connections between biological concepts and their own lives, and produce lab reports. Through literature and class discussions, students will gain a better understanding of the nature of science. Students will complete a final project completed over the course of the five weeks that will be presented at a public exhibition on Wednesday, August 12, 2015.

Grade Equivalent: Biology | **Eligibility:** Grade 10-12 | **Enrollment Options:** Credit Recovery (Grade 10-12), Honors Prep (Grade 9/10)

THE CHEMISTRY OF ART

Chemistry is the study of the properties of matter, including elements, compounds and mixtures, while art is the expression of human skill and creativity. Over the six week session, students will learn Chemistry concepts while exploring a variety of
art techniques. Atomic structure, the physical and chemical characteristics of elements, and the patterns of the periodic table will be addressed through the investigation of light and color. Atomic interaction and chemical bonding will be studied through the water marbling method, production of crystals and etching of copper. Students will complete a final project that will result in tangible works of art displayed through the concepts of Chemistry. The final projects will be presented at a public exhibition on Wednesday, August 12th, 2015.

Grade Equivalent: Chemistry | **Eligibility:** Grade 10-12 | **Enrollment Options:** Credit Recovery (Grade 10-12), Honors Prep (Grade 9/10)

MOTION AND THE PHYSICS OF CHANGE

This course is a dynamic hands-on laboratory science course. The curriculum for Motion and the Physics of Change is split into three major units. Each requires students to collect and mathematically analyze experimental data and each culminates with a project. In the first unit, students will study velocity, acceleration, Newton's Laws and momentum. The second unit covers electricity, including both static electricity and electric circuits. Students will explore the physics of music in the third unit by exploring waves, sound, and light. Students will complete a final project during the course of the five weeks that will be presented at a public exhibition on Wednesday, August 12, 2015.

Grade Equivalent: Physics | **Eligibility:** Grade 9 | **Enrollment Options:** Credit Recovery Grade 9

MYSTERIES OF MODERN SCIENCE

In the course, we will discuss questions that continue to puzzle the scientific community, and we will investigate the work of modern scientific researchers who are seeking to answer these questions. In addition to learning about scientific techniques used at leading universities and national laboratories, students will master practical hands-on skills foundational to work in experimental modern science. Students will apply these skills as they work together to build robots that will be showcased in a public exhibition on August 12, 2015.

Grade Equivalent: N/A | **Eligibility:** Grade 9-12 | **Enrollment Options:** Elective | **Enrollment Note:** Enrollment will be limited to 12 students.

MATH COURSES

THE MATHEMATICS OF SOCIAL JUSTICE

In this interactive course, students will use mathematics to identify, analyze, and combat social inequalities in their communities. Topics of study may include racism, pollution, gentrification, public education, and/or health care. All students will complete research projects and make policy recommendations at a public exhibition on Wednesday, August 12, 2015. This course addresses the Common Core State Standards for Mathematical Practice and High School Algebra.

Grade Equivalent: Math I (Algebra I) | **Eligibility:** Grade 9 | **Enrollment Options:** Credit Recovery (Grade 9)

MATHEMATICAL INQUIRY

This course is the second year of our High School Mathematics Program and covers the Massachusetts Curriculum Frameworks standards for grades 9-10. The learning standards that will be covered are number sense and operations; patterns, relations and algebra; data analysis, statistics, and probability. This year's course will emphasize the geometry and measurements learning standards. The use of manipulatives and computer technology will provide students with the opportunity to explore, model, and analyze. The course will continue to involve students in active learning, inquiry based problems and problem solving strategies to build conceptual understanding. This section will explore concepts in greater depth, have a stronger focus in proof writing, and will work at an accelerated pace. The use of manipulatives, hands-on projects, and computer technology will provide students with the opportunity to explore, model, and analyze the concepts presented. Students will complete a final project completed over the course of the five weeks that will be presented at a public exhibition on Wednesday, August 12, 2015.

Grade Equivalent: Math II (Geometry) | **Eligibility:** Grade 9 and 10 | **Enrollment Options:** Credit Recovery (Grade 10), Honors Prep (Grade 9)

POLYNOMIAL ROLLER COASTERS

This course uses algebraic expressions and models for studying functions and solving real world situations. Graphing is emphasized and geometry is applied. Topics include describing, extending, analyzing, and generalizing linear, quadratic, cubic and other higher-order polynomial functions and

relationships. The use of manipulatives, hands-on activities, and technology will provide students with the opportunity to explore and model the concepts presented. Students will complete a final project over the course of the five weeks that will be presented at a public exhibition on Wednesday, August 12, 2015.

Grade Equivalent: Algebra II | **Eligibility:** Grade 10-12 | **Enrollment Options:** Credit Recovery (Grade 11), Honors Prep (Grade 10)

PRE-CALCULUS

This course builds upon the skills students have developed in Algebra II to further explore the world of functions and other specialized mathematical structures, such as matrices, sequences and series, and

the complex numbers. We'll explore these topics together using student-guided explorations, with a goal of preparing students to apply the concepts both to life outside the classroom and to the future

study of calculus. Students will complete a final project over the course of the five weeks that will be presented at a public exhibition on Wednesday, August 12, 2015.

Grade Equivalent: Pre-Calculus | **Eligibility:** Grade 10-12 | **Enrollment Options:** Enrichment, Honors Prep (Grade 11)