

Enrichment Program Elective Courses by Discipline Summer 2020

Students in the Enrichment Program choose one writing course and two electives. For an additional \$750, students may enroll in a third elective. (\$995 for Test Prep courses)

Art Courses

Ceramic Sculpture: Hand Building

Grade Level: Rising 7-11

This course introduces students to basic hand building techniques for making ceramic sculpture and vessels. Students will learn to create three dimensional objects with clay slabs, pinching, carving, coiling, and by using molds, as well as learn several different glazing techniques. The syllabus includes emphasis on learning hand building and glazing techniques for creating ceramic sculpture.

Pottery: Introduction to Wheel Throwing

Grade Level: Rising 7-11

This course introduces students to wheel throwing and the process of making pottery. Students will learn about the physical properties of clay, working with a potter's wheel, as well as various glazing techniques. The syllabus includes emphasis on learning the technique of wheel throwing, vessel design, pottery related hand-building, and glazing.

Digital Photography: Transforming Your Pictures

Grade Level: Rising 7-11

Photography has become second nature in our highly digitalized world. It constantly transforms the way we take and share pictures. In this course, students will review the fundamentals of photography, including composition, apertures, shutter speeds, and perspectives. By the end of the course, students will have a basic understanding of digital photography and Adobe Photoshop. Our focus will be on conceptual development to complete a small body of work, consisting of well-edited pieces with a different theme each week. Students will also be introduced to historical and contemporary artists in an effort to explore the world of fine art photography.

Interdisciplinary Courses

Bioengineering: To Mars We Grow!

Grade Level: 7-11

In this class, students will be part of the bioengineering team that wishes to study plant growth on Mars. Students will design plant growth chambers to grow plants on Mars. In doing so, students will research what plants would be most useful to the astronauts, design their solutions, and create both non-working and working models. This class will combine a variety of traditional disciplines such as Biology, Environmental Science, and Engineering with a design thinking approach. The course will significantly utilize the Loomis Chaffee Pearse Hub for Innovation (PHI).

Entrepreneurship: Human-Centered Design

Grade Level: Rising 9-11

This course will introduce students to the process of Design Thinking (DT) and provide an opportunity to practice the skills involved in several different areas. Students will learn the design-build process and gain experience fabricating their designs. Students will tackle real and meaningful problems by designing creative solutions for people in the local community. This course will regularly utilize the Loomis Chaffee Pearse Hub for Innovation (PHI) for instruction and experimentation.

Design Time! Introduction to Engineering

Grade Level: Rising 7-11

Students will learn about and gain experience in the engineering design and manufacturing process. Students will learn the design thinking approach to problem identification, the process of creating prototypes using the resources of the makerspace (3-D Printer, laser cutter, CNC router, sewing machine, etc.), and skills involved in collaborating on a diverse team to achieve project goals. Students will culminate the course with a presentation on a project of their own design. This course will regularly utilize the Loomis Chaffee Pearse Hub for Innovation (PHI).

Mathematics Courses

Algebra Fundamentals

Leveled by Ability

This enrichment course is designed for students preparing to take Pre-Algebra, or a like course, in the fall, or for students who would seek clarification or additional repetition with topics in Pre-Algebra. The course will emphasize the development of computational skills, problem-solving, and critical thinking. Topics will include a survey of algebraic expressions, graphing linear equations, computing slope, and applying algebraic principles to simple and complex word problems. **Students in Algebra Fundamentals and Algebra I: An Introduction will take a placement test on the first day to determine proper placement.*

Algebra I: An Introduction

Leveled by Ability

This enrichment course is designed for students who thrived in a full-year Pre-Algebra course and seek an advanced look at topics in Algebra I. Students in this course have a strong foundation with pre-algebraic fundamentals and are prepared to meet the challenge of more advanced topics and problems. This course is designed to strengthen problem-solving and critical thinking skills, review select topics learned in Pre-Algebra, and preview key concepts presented in Algebra I, so the students are prepared to excel in the fall. Topics will include slope, lines, systems of equations, factoring, and solving and graphing quadratics. **Students in Algebra Fundamentals and Algebra I: An Introduction will take a placement test on the first day to determine proper placement.*

Algebra II: An Introduction

Prerequisite: Algebra I

This enrichment course is for students who have completed a full-year Algebra I course and are preparing to take Algebra II in the fall. This course is designed to strengthen problem-solving and critical thinking skills, review topics learned in Algebra I, and preview key topics presented in Algebra II. Topics include evaluating algebraic expressions, solving linear equations and inequalities, factoring and solving polynomials, graphing quadratics, and an introduction to probability.

Science Courses

Chemistry Conundrums Clarified

Grade Level: Rising 7-8

Mentos + Coke = Explosion! How does this work? Why are fireworks different colors? What makes glow sticks glow? Find out the answers to these and many other common chemistry conundrums in this introduction to the fundamentals of chemistry course. This hands-on course will expose students to the foundational principles of chemistry through a problem-based learning approach.

Creative Problem Solving: Introduction to Coding

Grade Level: Rising 7-11

Are you curious about how computers are programmed? This interactive course introduces students to the vast world of computer science. Students will begin with the user-friendly program DataCamp, where they will write their own code. Students will learn the skills to create projects ranging from action-packed video games to animated short movies. Students will be exposed to the basics of Python, a programming language. The goal of this course is to give students a taste of computer science and its applications to enhance their understanding of our digital world.

Forensic Science

Grade Level: separate sections for 7-8 and 9-11

Crack the case in this crime scene investigation course! Students will focus on the application of various science techniques used to solve crimes, including: blood typing, fingerprinting, nutrition testing, hair analysis, DNA analysis, ink analysis, and blood splatter analysis. Students will combine knowledge from biology, chemistry, and physics in order to solve multiple crime scenes. In addition to the science content, students will use logic and deduction to piece together various clues to solve mock cases on campus.

Welcome to Robotics

Grade Level: Rising 7-11

Bring your imagination and dreams, and we will try to program them into reality. In order to build properly functioning robots, designers must understand engineering concepts, have a creative mind, and confidently implement their ideas. In this course, students will learn the basics of building and programming robots to accomplish a variety of tasks. This course addresses a number of topics across disciplines that are necessary to understand the fundamentals of designing, building, and programming robots.

History, Philosophy, and Social Sciences

20th Century U.S. History

Grade Level: Rising 7-8

This course is a survey of American history during the 20th century. Students consider the changing nature of American liberty and identity in an effort to enhance their understanding of American society today. Students investigate events, people, and documents that helped to shape the United States and define it in terms of politics, culture, geography, and ideology. Over the course of the summer, students examine primary and secondary sources, and engage in media such as music and films in an effort to understand the wide array of narratives and perspectives that constitute American history. When possible, students will visit local museums or galleries to expand learning beyond the classroom.

Business & Economics: Beware of the Shark Tank

Grade Level: Rising 9-11

Have you ever wanted to appear on the hit TV show, Shark Tank? Students in this course will dive headfirst into concepts covered in introductory economics and business courses. Topics will range from financial investments to game theory and behavioral economics. The course takes an interactive approach to learning with class time utilized for a variety of simulations, experiments, negotiations, case studies, and games. Highlights of the course include the creation of an investment portfolio that students will track for 5 weeks, the development of a business model that students will pitch to a panel of experts, and a Harvard Business Case Study.

Common Good Leadership

**Returning LCSP Students Only*

Students who have already completed the first five weeks of the LCSP's Best Self curriculum return to continue their journey of self-reflection through the lens of leadership. Participants will examine their leadership traits and remarkable capacity to impact the common good in the communities in which they reside. Students will co-author a working definition of leadership, draft and present their personal leadership philosophy, participate in active listening and generative dialog exercises, and craft a Common Good Action Plan.

Growing up Gen Z: An Introduction to Psychology

Grade Level: Rising 7-8

Students born between 1995 and 2015 are considered Generation Z. This course takes an interactive approach through class discussions, activities, videos, and case studies to help students critically examine what it is like growing up in the 2000's, and how that has shaped who they are today. Topics will include Developmental, Clinical, Positive, Performance, and Personality Psychology to help students explore their own life and the lives of those around them.

Heroes: Ordinary People, Extraordinary Feats

Grade Level: Rising 9-11

This course offers an in-depth exploration of how various cultures define and identify heroes, how literary heroic journeys unfold, and perhaps most importantly, how real-life heroes confront adversity and rise to become models for the rest of us. Building out from the mythological hero's journey as delineated by Joseph Campbell, this course invites students to immerse themselves in the criteria different cultures use to identify the personal traits, decisions, struggles, and triumphs that transform ordinary mortals into extraordinary heroes. Students examine how specific people continue to stand apart for their moral courage, remarkable strength, resilience and powerful victories. As we compare both imagined and historical heroes, we come to understand the specific values cultures revere in the people they exalt. Ultimately, we explore how we can foster these values in ourselves as well, reinforcing how each of us carries great power to do good in our own world.

Logic: The Science of Reasoning

Grade Level: Rising 9-11

If I am a German Shepard, then I am a dog. But, if I am a dog, am I a German Shepard? This argument only logically works in one direction. How do we reason well? Logic, with traces in both mathematics and philosophy, is the science of reasoning. But how do we reason correctly? Understanding symbolic logic provides us with a rich set of tools that we can use to represent our arguments. Many arguments in our language can be "translated" into this system. Students will learn to construct truth tables from those translations to demonstrate if they are logically valid. But what about the sorts of arguments we encounter every day? This course will also investigate the ways in which reasoning can be unsound, namely by depending on argumentative fallacies. In addition to exploring logic in philosophy and

mathematics, students will hone their writing and public speaking skills as they develop and test their arguments. By this course's conclusion, students will have both a solid understanding of the basics of symbolic logic and best practices for crafting sound, persuasive arguments.

Mythology: Adventures with Gods, Monsters & Heroes

Grade Level: Rising 7-8

Perhaps you've already traversed the Underworld with Percy Jackson, or escaped from the Cyclops' cave with Odysseus, or battled the Midgard Serpent with Thor. Perhaps you're still waiting to discover literature's greatest adventures, rooted in the oldest stories of ancient cultures, the gods and goddesses, monsters, and heroes that continue to influence popular books, movies, and culture in today's world. Either way, this course invites students to immerse themselves in fantastical worlds and unparalleled adventures. In Mythology, we begin with an examination of the common elements of all myths, illustrated through multiple versions of vivid stories meant to not only entertain, but to teach moral values and explain scientific phenomena. Next, we dive into classic myths from the ancient Greeks and Romans, from the Egyptians, from the Vikings and from other influential lands and eras as well. Ultimately, we learn how mythology tells the human story across cultures and centuries, and influences many of our favorite stories today.

Public Speaking: Confidence and Competence

Grade Level: Separate sections by grade level (rising 7-8 and 9-11)

In an increasingly competitive world, the ability to express oneself and speak in public with clarity, persuasiveness, and even elegance is a critically important skill. Of related and equal importance is the ability to readily analyze, develop, and defend a sound and persuasive argument. This course introduces traditional forms of debate and is designed to develop the confidence and competence to speak in public and argue persuasively and logically. Students hone their speaking skills using a variety of traditional speech events and exercises.

Self-Exploration: Introduction to Social Psychology

Grade Level: Rising 9-11

This course will introduce students to fundamental concepts and theories regarding topics such as personality traits, group dynamics, conformity, prejudice, group think, gender roles, norm of reciprocity, stereotype, altruism, and interpersonal attraction. Through class activities, discussions, case studies, and films, students will also explore the intricacies of how gender and ethnic diversity may impact the construction of social values with connections to their own lives and experiences.