Saturday and Sunday (on-site)

K-1

Grossology

Are you prepared to dive into the GROSS world? Grossology is the study of really gross things. We’ll be discovering the good, the bad, and the ugly of how the human body works while making imitations of some of the gross things our bodies produce. We'll also search for and observe gross bugs like ant and mantis on campus!

Machine Invention

Calling all inventors! Use the Engineering Design Process and basic physics to build your own machines. The instructor will show you engineering skills using everyday materials. You'll build catapults, mechanical arms, mazes, and more!

Marketing Your Favorite Toy

Toy marketing is serious business! Learn how to develop a marketing plan for your favorite toy. Apply business and mathematics skills to predict and track your favorite toy's sales. Develop a marketing strategy and advertising budget to maximize your toy's brand recognition and assist your classmates with their marketing plans. Collaborate to develop a new toy and its marketing plan.

Inspecting Invertebrates

Students will delve into this branch of biology that deals with the study of animals lacking a backbone! Do you know that the invertebrates comprise 95 percent of animal species? You will work as scientists, researchers, and investigators to gain a greater understanding of the creatures we see every day. Example of the specific kinds of experiences students will include observing the growth of silkworms and/or beetles, dissecting squids, and more!

Astronomy

Blast off for a tour of the solar system and beyond! On our journey we will visit stars, explore our planets, and investigate out-of-this-world topics including life in other parts of the universe, black holes, and unusual galactic behavior. Amaze your friends and family with what you learn about our universe from this course.

Programming Your Story: Scratch Jr.
Calling all digital storytellers! This introductory programming and creative writing course is designed to challenge students to create stories using the Scratch Jr app. Students will explore the elements of story-making while also learning programming logic.

The World of Cells

You will learn about plants, animal, and fungi cells. Working together, you will learn the basics of cell structure and function for each of the three groups. You will have a chance to create cell structures, observe cells through microscopes, and dissect different creatures!

Things that Fly

What is that object soaring through the sky? This class is a hands-on look at flight. You will examine high-flying balloons, parachutes, airplanes, UFOs, and other flying objects. Learn how air and force are used together to move a glider from one place to the next. Design the ultimate kite and see if you can get it to fly in the wind. Be prepared to keep your head up and eyes open in Things that Fly.

Traveling Paintbrushes

Engage in exciting art projects that range across many years! You will learn the basic techniques of painting in a multitude of ways. You will demonstrate creative self-expression and learn to identify different types of artwork. You will be introduced to different famous painters, learn about colors and how they mix, experiment with different media, and most important become educated painters!

**Grades 2-3**

Designing Alarm Circuits

How do electrical circuits work? The lessons in this course will get you thinking and problem solving like an electrical engineer. The hands-on activities in this course reinforce science concepts including conductors and insulators, schematic diagrams, and and circuits. For the final engineering design challenge, you will plan, create, and improve your own alarm circuit.

Write, Create, Act

Calling all play writers and actors! You will use your writing skills to rewrite famous stories. After that you will design unique costumes for the characters you create. Finally, you will act out your new stories. Take this course if you want to use your imagination and creativity.

Marine Creatures

Come on a journey with us in this class and become an underwater explorer! You will learn about some of the many different marine species, endangered marine species, migrating marine life, effects of pollution, fishing, and many other ocean features. You will have a chance to dissect a squid and/or a starfish and learn their body structure.

Future Picasso
Discover your inner Picasso! Picasso once said, “Everything you imagine is real.” In this class you are going to put his quote to work! Be ready to stretch your imagination and create your own unique Picasso inspired artwork. You will be experimenting with collage, painting, chalk, and drawing in this class. Do you have what it takes to be the next Picasso?

Science and the Art of Construction

Ever wonder why skyscrapers can be so tall or why cars can drive across bridges? Let's explore together! Through hands-on activities, you will experiment with shapes, forms, and forces used in building the world around us; you will also illustrate your ideas through painting and designing. Be prepared to bring your own ideas as we lay the foundation for our budding architects, engineers, and scientists!

Mad Scientists

Become a secret formula master! This introductory chemistry course is designed to challenge students to create and investigate chemical reactions that help our society to function. Class activities will focus on introducing students to chemical reactions such as water density and acid-base reactions, while applying creativity, communication, collaboration, and observation skills.

Robotics and Engineering

Calling all tinkerers! This engineering applications course is designed to challenge students to create and complete tasks using robotics and engineering tools and equipment. Collaborate with your classmates to learn basic principles of electronics through Little Bits. You will work in groups and individually on challenging electronics activities that promote problem solving, collaboration, communication, and the engineering design process. Electronic inventions developed in class may include a vehicle and a throwing arm.

Rockets and Rovers

Calling all astronomers and engineers! Do you want to learn how to engineer rovers that can be used to explore faraway worlds? Do you want to learn about the trade-offs and variables involved in engineering a rocket? In this course you will engineer rockets and rovers to explore several planets and moons in our solar system. Be ready to blast off to the International Space Station!

Game Design with Scratch

Coding has quickly become the newest "must-have" language for future professionals. Scratch is a programming language designed to help children learn to program. Students will work collaboratively and individually to create interactive stories, animations, games, and/or music - all while learning the fundamentals of computer programming.

Grades 4-5

Zombie Science
The myth of the Zombie is deep within our history. In this class we will examine the myths of the Zombie through Epidemiology. What makes someone a Zombie? Some diseases can give people a zombie like appearance. In this class you will explore issues of outbreak containment, diseases that manifest in how we view zombies today, and epidemiology. This science class will take you through understanding various disease states. You will be challenged to work on hands-on experiments that show how populations shift and change through viral or bacterial influence. [Please note - images of Zombies may be presented.]

Law Fair

Ladies and gentlemen of the jury:

Learn about the law and have fun, too! Plaintiffs and defendants. Witness testimony. Burden of proof. These are just a few of the legal terms students will learn in the exciting course. Find out about courtroom procedure from an insiders perspective. Write your own testimony as a witness, or prepare your opening arguments as an attorney. Learn about how Shakespeare may help you write your arguments.

Students will have the opportunity to prepare an original law case. Laws will be researched, testimony written, and both sides of the case carefully explored and designed.

At the end of the course, a Mock Trial presentation will be performed. Which part do you want to play a witness, an attorney or maybe even the judge?

Your honor, the defense rests.

Web Design

Do you have a keen eye for design and a love of programming? This course is optimal for students whose interests encompass design, programming, and who feel knowledgeable about a particular subject. Webpages are designed using a variety of tools for an endless amount of topics. In this course you will learn how to use the basic tools of web design and learn how to utilize HTML, CSS, Java, and more!

Effective Public Speaking

Do you want to be a social media star? Come and learn public speaking skills. The course highlights rhetoric's importance to public speaking. You will develop a theoretical understanding and practical application of oral communication skills. The course also includes techniques in controlling speech anxiety, how to structure and organize information to present to a variety of audiences, and physical and vocal delivery skills.

Marine Ecosystems

Do you love the ocean? Do whales and sea worms fascinate you? Join us for an exploration of marine ecosystems around the world. You will work collaboratively and individually to investigate how marine ecosystems function with a focus on each ecosystem's food web. Learn why coral reefs are called "underwater rainforests" and share in the excitement of creatures who glow in the dark!
Business Design

Become the next entrepreneur! The course is designed to expose the interested student to many functions of modern business using research and problem-solving skills. Topics such as business environment, management, organization, marketing, finance, accounting, and data processing are discussed in an introductory manner. If you're thinking about starting your own business in the future, this is the right course for you! You will learn everything from how to develop proven marketing techniques to traditional and nontraditional financing options.

Electromagnetism

Electromagnetism is the study of forces between charges, as described by Coulomb's Law. Electrostatic force is also one of the four fundamental forces of nature. In this class, you will work through examples of inverse square law, the electric field near a line, and near a plane, and develop formal definitions of both electric potential and voltage.

Open Studio

Calling all creative thinkers! You will investigate the relationship between color, shades, subject, content, meaning, and process while working across various media. Learn how to produce high quality artistic works in pencil, watercolor, and other media. In this project-based class, explore media you have never used before!

Chemistry and Matter

Have you ever wondered how some insects are able to "skate" on the surface of water? You will learn about how intermolecular forces make this possible, and how heating or cooling affects the speed of water molecules. You will also learn about liquids, solids, mixtures, and phase changes through a variety of chemical experiments.

The Sound of Numbers

Do you know that music and mathematics have a lot in common? Technology today uses math to create the music you enjoy and to create music-writing robots. Come and explore the connections between mathematics and music, learn wave frequencies, octaves, and more. Learn the mathematics behind music using your analytical abilities and creativity. By the end, you will have the opportunity to compose your own music piece using magical mathematics!

**Grades 6-10**

Living Organisms

Where do all the amphibians, reptiles, fish, birds, and mammals fit into the schemata of things? Scientists name and label every living organism. Students will identify those characteristics that are the basis for classifications from Domains to Species. A Russian Tortoise, Fire Belly Toads, and a Leopard Gecko will be on hand for observation. Labs will feature projects exploring photosynthesis, the interactive process between animal and plant kingdoms. This course is inspired by a profound love of nature.
Artificial Intelligence with Java

Calling all future programmers! Students will work collaboratively and individually to create their own animations, games, tools, apps, or anything else they can think of in a fun and interactive environment. Students will see immediately how Java code is translated into an end product on the screen. Students will gain insight into the mind of a computer programmer as well as a basis for further education in software development and artificial intelligence.

Big Data and Business

Make strategic analysis skills your business! In this course, you'll learn the statistical analysis tools to analyze operational business strategies across time (competitive dynamics), industries (corporate strategy), geographies (international strategy), and institutions (non-market strategy). Students will analyze the success and failure of large companies by exploring how advanced economic ideas were applied to inform critical decisions. Groups and individuals will be challenged to design or improve their own business including the presentation and peer critique of their strategic management and marketing plans.

Robot Wars

Robots unite! This engineering applications course is designed to challenge students to build robots to compete against each other to solve problems or perform tasks. You will design, model, and build a functioning robot using Vex robotics. Individuals or teams will then compete for who can complete the given challenge efficiently and effectively. You and your classmates will critique each other's performance and work together to improve your designs.

Future Lawyers

Learn about the law and have fun, too! Plaintiffs and defendants. Witness testimony. Burden of proof. You will review true court cases with your classmates and conduct a mock trial. Teams will design testimony through research, practice public speaking, and understand different parts of the courtroom. Write your own testimony as a witness, or prepare your opening arguments as an attorney. Which part do you want to play a witness, an attorney, or maybe even the judge?

Forensic Psychology

What were criminals thinking? Discover the strategies and techniques professional profilers use to unravel the mysteries of people’s minds. Examine real world case studies and develop your own diagnostic skills. This is a perfect course for anyone who is interested in forensic science and want to learn more about the psychology part of investigation.

G&T Debate

Prove you have what it takes to craft and deliver polished responses as part of the Gifted & Talented Debate Team! Verbal communication mastery is a highly valued skill. Work collaboratively and individually to practice your written and verbal communication skills. From doctors and lawyers to parents and politicians, your debating skills will serve you well.

Patterns in Nature
Are you fascinated by nature and the universe? What does the Fibonacci sequence have anything to do with snails? How is Van Gogh related to fluid mechanism? You will discover the manifestations of geometrical patterns including Sine Waves, Seven Star, Julia Set and rhythms revealed in art, music, and nature through drawing, folding, and other hands-on creative activities each week.

Einstein's Astrophysics

When you look up at the night sky, do you wish that you had an ultimate telescope that could visualize different types of particles? Embark on a deep dive worthy of Einstein and Hawking, an intergalactic exploration from how stars and galaxies function to the theory of relativity. Discover how we have developed ways to observe the universe from telescopes to the Large Hadron Collider. Work collaboratively and individually to explore strange objects and analyze different types of processes. This course will encompass many advanced topics but will focus on particle physics and quantum mechanics.

Creative Writing: Mysteries and Science Fiction

This course is structured as a workshop and offers an opportunity to study mysteries and science fiction. We will compare and contrast various authors’ use of writing techniques to help you understand how to write a mystery or a work of science fiction. You will gain greater skill, insight, and enjoyment as readers, thinkers, critics, writers, and publishers of your own (original!) mystery or science fiction short story.

Chemical Engineering

Thermodynamics is the study of heat and work and it is widely applied in chemical engineering. You will be learning about energy transfer during chemical and physical changes, and how you can predict what kind of changes will occur. Concepts covered in this course include the laws of thermodynamics, internal energy, heat, work, PV diagrams, enthalpy, Hess's law, entropy, and Gibbs free energy.

Online Courses (Gr. 4-8)

The Architectural Experience

This conceptual architecture course will focus on introducing students to architectural patterns and techniques through activities, photos, and videos. Students may need to use common household items such as rulers, straws, and cardboard to complete their own architectural models. Successful students are those who enjoy finding patterns in data, who are observant and inquisitive, who are not afraid to actively contribute to scholarly discussions among peers, and who possess a sustained motivation to complete tasks on time. This course includes one hour of online discussion per week over the course of the nine-week session, so students will need Internet access to communicate via the Canvas learning management system.

Neuroscience
How does the human brain function? This biomedicine course will explore the anatomical components and the physiological functions of the human nervous system with a focus on the brain. Learning modules include photos and videos of dissected mammalian brains. Successful students are those who enjoy finding patterns in data, who are observant and inquisitive, who are not afraid to actively contribute to scholarly discussions among peers, and who possess a sustained motivation to complete tasks on time. This course includes one hour of online discussion per week over the course of the nine-week session, so students will need Internet access to communicate via the Canvas learning management system.

Wild Weather

Ever wonder how a thunderstorm can produce so much lightning? Do you enjoy measuring the snow whenever we have a winter storm? Then you will love the Wild Weather online course! We will be investigating how and why severe weather occurs with a focus on U.S. events. Students will be expected to record their own weather observations using common tools such as a plastic rain gauge and thermometer, and to regularly analyze maps, graphs, and charts of real, severe weather events. Successful students are those who enjoy finding patterns in data, who are observant and inquisitive, who are not afraid to actively contribute to scholarly discussions among peers, and who possess a sustained motivation to complete tasks on time. This course includes one hour of online discussion per week over the course of the nine-week session, so students will need Internet access to communicate via the Canvas learning management system.