

1	Astronomy	Students will explore the wonders of the universe through model building, demonstrations, and activities. Topics include the sun, the planets, the solar system's size, comets, asteroids, and meteoroids, low-mass and high-mass star life cycles, black holes, and phases of the moon. Some of the activities include building models of asteroids and comets, creating a nebula in a jar and a star life cycles mobile, and viewing the sun using special solar glasses.
2	Biology A- Cells	Students will explore animal cells, cellular respiration, diffusion/osmosis, DNA structure, cell division (mitosis), genetics, bacteria, viruses, pathogen transmission, and protists. Students will build cell and DNA models, extract DNA from strawberries, perform Easter egg genetics while learning about Punnet squares, and more.
3	Biology B - Ecology	Students will learn how organisms interact with each other and their environment. Some of the topics to be explored through hands-on activities and models include adaptations, limits on population size, energy flow in an ecosystem (energy pyramid/food web/food chains), carbon and nitrogen cycles, and the role humans play in the environment. Biology A is not a prerequisite for this class.
4	Botany	Students will investigate growth, reproduction, anatomy, morphology, and physiology of plants, algae, and fungi. Some of the topics to be explored include plant cells, plant vascular system, root types, flowers, leaf shape and arrangement, photosynthesis, seeds and seed dispersal, fungi, and non-vascular plants (mosses).
5	Bridges and Buildings	Students will learn about the engineering design process and physics as they design and build popsicle stick bridges and straw buildings. Teams will compete to create the strongest structures.
6	Chemistry	Students will explore atoms, sub-atomic particles, molecules, acids/basis, polymers, and more. Examples of some of the activities/models: build atom and molecule models, test the pH of various solutions, model balancing chemical equations, and create endothermic and exothermic reactions.
7	Crime Scene Investigation (CSI Lab 1 and 2)	Students will learn how chemistry, biology, and physics are used to solve crimes. Labs will include hands-on activities in blood typing, fingerprint identification, handwriting analysis, blood spatter analysis, soil analysis, and more.
8	Dissection Labs	Students will dive into the unexpected contents of a frog's stomach, marvel at the beauty of the tapetum lucidum in a cow's eye, feel a crayfish's stomach "teeth", learn about their own body systems by dissecting a rat, and much more. Super gross, but super fun and interesting! In the dissection lab, students will explore the internal and external structures of specimens (rat, frog/earthworm, crayfish/cow eye, and perch/grasshopper labs). Students will have their own specimens to dissect along with their own set of dissection tools to use and will label diagrams to reinforce what they have observed during the dissection. Dissection classes are for grades 4 and up, however, attendance is at the instructor's discretion. 3rd graders will be admitted by special permission. Students must be mature, willing and able to follow detailed instructions and focus for 2 hours, and have excellent fine motor skills (they will be using a very sharp scalpel and scissors.)
9	Earth Science	Students learn about the Earth's layers and how movement of the plates have shaped the Earth's surface over the past 4.5 billion years. They will create clay fault models to illustrate the three fault types, perform earthquake activities, learn how a seismograph is used to measure movement, investigate the rock cycle using Starburst candy, and perform mineral testing and cupcake core sampling.
10	Embroidery: Level 1 and 2	Students will learn to decorate fabric through the art of embroidering. Basic stitches like satin, french knot, leaf, running, stem, and lazy daisy will be used in projects. All sewing supplies will be provided.
11	Food Science	Food science includes examining the makeup of food, how to process (or make) it, and what packaging and conditions make it safe for us to eat. Students will use various methods to study the food we eat. Some topics to be covered include: the science of smell and flavor, food preservation, gummy worm chemistry, cookie taste testing, and viscosity. For students with food allergies: This class has labs that include eating various foods, however, no one is required to eat anything.
12	Google Sheets	Students will perform an simple experiment and use the data to learn about formatting cells, performing calculations using formulae, and graphing in in Google sheets.
13	Hand Sewing: Level 1	Hand sewing is a fun and creative activity that is also useful. In this class, students will learn this extremely valuable lifelong skill through a variety of engaging projects designed to teach traditional hand stitches. The project-based learning includes sewing a needle book, a pincushion, a button "tree", a felt mouse, and a drawstring bag. Additionally, throughout the class, students will be exposed to vocabulary unique to the world of sewing. Class fee includes a small personal sewing kit and fabric.
14	Hand Sewing: Level 2	This class is a continuation of Hand Sewing: Level 1. Students will continue to sew projects, including a quilt-block pillow, that will help them improve their sewing skills. Class fee includes a small sewing kit and fabric. New students can join this class if they have some basic sewing skills.

15	Human Anatomy	Students will explore the skeletal, circulatory, respiratory, muscular, digestive, auditory, and nervous systems by labeling diagrams, creating models, and performing activities. Here are some of the activities: building a pasta skeletal model and edible bone model, walking through a large heart model to understand the structure of the heart and how blood is oxygenated, examining a cow or pig heart, using a huge nerve cell model to understand how a neuron fires, and simulated blood typing.
16	Human Anatomy and Biomedical Engineering	Students will learn about various body systems and design medical devices for them. Students will design and build a prosthetic leg, blocked artery clearing device, design a pill coating and more.
17	Life Skills: Real World Basics	Life skills equip students to deal effectively with the common demands and challenges of everyday life and thrive in the world beyond the classroom. Through engaging hands-on and collaborative activities, students learn the traditional "life skills" of sewing on buttons, tying various knots, deciphering nutrition labels, and personal correspondence. Additionally, while rediscovering these lost arts, students will focus on 21st century "life skills" of flexibility, initiative, productivity, and leadership.
18	Microscope Lab	Students will discover the wonders of the microscopic world through microscopy. Labs will include slide preparation, pond water, human and plant cells, insects, pollen, hair and fur, and more.
19	Oceanography	Students will dive in and explore the ocean and its inhabitants. Some of the topics to be covered through hands-on activities and models include bioluminescence, sea life adaptations, jellyfish life cycle, the ocean's salinity, the sea floor, squid dissection, and marine food webs.
20	Physics A	Students will explore simple machines (lever, pulley, inclined plane, screw, wheel and axle, and wedge), magnetism, electricity, gravity, and flight through activities that illustrate these concepts.
21	Physics B	Students will explore force, work, potential and kinetic energy, Newton's Laws of Motion, thermodynamics, states of matter, density of solids and liquids, light, sound, and air pressure through activities that illustrate these concepts. Here are some examples of some of the activities: create a marble roller coaster to understand potential and kinetic energy, use density cubes and a triple beam balance to calculate density of a solid, use prisms to observe components of white light, and use Hot Wheels cars to observe the laws of motion. Physics A is not a pre-requisite to Physics B.
22	Physics C	Students will explore the properties of light, color, sound, and heat through hands-on activities that illustrate these concepts. Some of the topics to be covered include the electromagnetic spectrum, sound waves, refraction/reflection/absorption, conduction/convection/radiation, and the laws of thermodynamics. Physics A and B are not prerequisites to Physics C.
23	Rollercoasters	While building paper roller coasters for marbles, students will explore the physics (potential and kinetic energy, friction, and gravity) and the engineering design process used by engineers in designing roller coasters. Student teams will compete to build the most cost-effective, creative, and exciting roller coaster. This class is best for students who have excellent fine motor skills (lots of paper cutting and taping), patience, and focus.
24	Science Fair Project Seminar	This is a two-part seminar in which students perform a simple experiment and learn about the elements needed for a science fair project. Topics to be covered include the scientific method, independent/dependent variables, controls, experimental design, data collection and analysis, and graphing.
25	Science Magic	Have you ever wanted to reveal the mysteries of magic? Well, you can... it just takes a little science! In this engaging hands-on class, students will explore how magnetism, light, friction, motion, inertia, gravity, heat, and optical illusions can be used to create fun magic tricks to mystify your friends and family.
26	Zoology	Students will explore the structure, physiology, and classification of various animals. Some of the topics to be covered include taxonomy, body symmetry, mammals, birds, reptiles, worm behavior, and clam anatomy through dissection.