

# Outdoor Lab GT/High Potential Week

## 2019 Class Descriptions

### MOUNT EVANS

#### ASTRONOMY

\$425

From explorations of the vast reaches of our solar system to creating a model of a spacecraft that must comply with NASA's specifications, Mt Evans Astronomy is sure to challenge and inspire students with a strong predisposition to mathematics and science.

Throughout the week, we will investigate the evolution of astronomical thinking from Aristotle to Einstein to current cosmologists in an attempt to unlock the mysteries of the cosmos above us. We will also be exploring elements of engineering and space travel. Student teams will experience real world STEM skills as they create model spacecraft, following the design process used by aerospace engineers as they compete for a mock NASA contract. Students will not only learn about astrophysics and engineering, they will also gain valuable experience with group communication and consensus-building.

Of course, being in a beautiful setting like Mt. Evans, we will use every opportunity to observe the daytime and nighttime sky using our powerful telescopes and solar observing scopes. We also plan to spend one night "Camping" in the observatory building--an experience no other students get to enjoy.

**A very important (and fun) aspect of our program:**

**GT Astronomy does not end at the same time as the other core groups.** Over the years, many parents have asked for the opportunity to view the night sky through our telescopes. To facilitate this, we have reconfigured our week to have parents wait to arrive to pick up their students until supper time on Friday. We have a potluck meal provided by visiting parents, and stay for an evening that allows students to demonstrate the knowledge they have gained throughout the week (must be seen to be believed). We then take time to observe the stars above us using the observatory. We will end no later than 10:30 p.m. on Friday.

#### AQUATIC FIELD BIOLOGY

\$425

Students in this class will determine the viability of life in the aquatic environment surrounding Mount Evans Outdoor Lab. Students will expand upon their knowledge of the ecosystem pyramid as it applies to the riparian ecosystem at Mount Evans. The following activities are included as part of our study:

- Take part in fly-fishing and tying your own flies with Trout Unlimited
- Measure, draw and collect information about water features at Mount Evans
- Analyze the chemical makeup of the water features surrounding Mount Evans
- Take part in an electrofishing survey of Jackson Pond with an Aquatic Biologist from Colorado Parks and Wildlife
- Identify different species of trout
- Collect and study insect samples by kicknetting in the water features surrounding Mount Evans
- Use belly boats to collect insect samples in Jackson Pond
- Explore and compare microscopic organisms that thrive in water, both from home and in mountain aquatic ecosystems

#### SEARCH AND RESCUE (SAR)

\$475 (\$425 tuition + \$50 for additional field experience)

Mountain Search and Rescue (SAR) is an intense class in which students learn the basic search methods for locating

lost individuals or groups in a mountainous environment. All participants of the Search & Rescue program will be required to attend an additional outing to build teamwork (see below). The class focuses on developing students' leadership and teamwork skills. Team members will:

- refine their compass and topographical maps skills
- learn about GPS (Global Positioning System)
- learn basic first aid and survival techniques
- discover the importance of communication by using the site's two-way radios
- participate in simulated searches at various times of the day
- participate in team building activities
- develop their leadership skills (as a team leader responsible for 3-5 other students)
- participate with guest speakers such as search and rescue dogs, mounted search and rescue and Arvada Fire department

This class involves extensive hiking, carrying a light daypack in various weather conditions. Weather permitting, SAR team members will have an overnight trip to the upper meadow (tents provided).

Throughout the week teams will be working on Google Sites creating a website to demonstrate their learning. Parents are encouraged to interact with their child through the website.

### ***Search & Rescue (SAR) Details for both Windy Peak and Mount Evans***

All participants of the Search & Rescue program will be required to attend an additional outing to the West Pines Training Center on Saturday, June 1, 2019. This outing will include high and low rope elements. During this program we will be developing our teams, setting goals, making decisions as a group, and getting to know one another. The educational philosophy is "challenge by choice," which means they believe maximum benefit and learning occur when the challenges are freely chosen by the participants. The West Pines facilitators will make every reasonable effort to teach the associated skills and safety procedures that help to create a supportive environment where accepting challenges is encouraged. The West Pines Challenge Course is founded upon the idea of learning by doing, and its purpose is to give opportunities to develop awareness and skills that lead to personal and group achievement.

**Attendance at the Saturday, June 1, 2019, West Pines Training Center course is mandatory. If attending on Saturday is a problem, we suggest you select another class in which to participate.**

## ART ADVENTURE

\$425

Using the breathtaking Mt. Evans setting as our inspiration, we will create a variety of 2D and 3D artwork during our full immersion art week. Artists work both collaboratively and individually in various media and create an art journal as a keepsake to sketch, record images, and write reflective statements. Short hikes will also inspire our work. After studying sand mandalas from India, nature sculptures by Andy Goldsworthy and symmetry in nature, we will gather natural materials to create our own unique sculptures and mandala designs. The scenic view from our classroom, act as wonderful inspiration for watercolor landscape paintings. We will also explore raku pottery by building our own raku kiln and firing our pieces! It's a wonderful study of how science and art combine to create beautiful ceramic pieces. Our group will collaborate with a local fishing company to learn how to tie flies and then fish them in our Mt. Evans pond! In addition, we will carve block prints of fish and make our own mini series of fish prints. At night, artists create light drawings using various light sources and cameras. Our week offers student artists a unique experience of artmaking, a deeper understanding of art processes, and an appreciation for nature while they grow as artists.

## WILDLIFE FORENSICS

\$425

This is the class for students who love animals, science, and solving mysteries. In Wildlife Forensics, students will investigate simulated crimes, learn about multiple forensic techniques, learn the science behind animal-species identification, and find out about efforts to fight real-world threats against wild animals. They will also be visited by forensics experts. Then, using their new scientific knowledge, students will travel to a site in the woods, and work to solve a crime involving animal poaching. Students will use forensics, biology, environmental science, general science, and criminology.

# WINDY PEAK

## ART ADVENTURE

\$425

Inspired by the mountain setting we will create works of art in various 2D and 3D media. Our week as artists will be about experiencing the breathtaking outdoors through art, while making art with other students that share the same passion. We will create art journals and record our week through image and text. We will look at functional art as we explore sculpture, fiber basketry and jewelry.

Landscapes will be discovered through en plain aire pastel drawing and painting. As artists we will collaborate to create earth works inspired by the work of Andy Goldsworthy. Finally, we will work with positive and negative space and use the sun to print cyanotypes. We will challenge our students to go deeper with familiar and new media as they discover who they are as an artist. Our week offers the artist an opportunity to grow and be submerged in amazing outdoor art!

## SPACE EXPLORATION

\$450 (\$425 tuition + \$25 for additional field experience)

The Space Exploration course for Windy Peak will have a two-part emphasis with a unique field trip mid-way through the week.

First - developing the practical skills associated with descriptive astronomy: students will learn to recognize the northern spring constellations and names of the brightest stars and planets traversing those constellations; and they will be given the opportunity to get some hands-on experience using the school's portable C-8 telescope and 14 inch pier mounted telescopes.

Second – The teaching staff will introduce students to aspects of astronomy and will discuss the life and death of stars as well as neutron stars and the ever popular black holes. Students will discuss the history and future of manned and unmanned exploration of space as they prepare a debate on whether the Moon or Mars will be a better place to colonize in the future.

### **Field Trip**

On Wednesday (June 5th) students will travel by school bus to Underwater Phantaseas Scuba shop to experience scuba diving. Underwater the students will experience the weightlessness that astronauts experience in outer space. Students will perform several tasks underwater to give them an idea of what they would experience if they were to colonize the Moon or Mars.

## SEARCH AND RESCUE (SAR)

\$475 (\$425 tuition + \$50 for additional field experience)

### **Mountain Search and Rescue (SAR) Windy Peak**

Students who sign up for the Search and Rescue (SAR) class will learn the basic search techniques for finding lost individuals. All participants of the Search & Rescue program will be required to attend an additional outing to the West Pines Training Center on **Saturday, June 1, 2019** (see details below). This intense class will include hiking and working together as a team in various terrains. Students will improve on skills such as compassing and mapping, using a GPS (Global Positioning System), first aid, and survival. Since communication is the key for any team to be successful, students will participate in mock searches using a GPS and two-way radio. Students who participate in this

class will gain valuable experience by becoming a team leader. On Friday, students will give a presentation of the week's activities. This class includes extensive hiking and some experience with PowerPoint.

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## ENVIRONMENTAL CSI \$425

The people of Silver City are getting sick, and they need *your* help!

Silver City has an epidemic sweeping through, and the residents are baffled about its source. Where is it coming from? Is it the food? The air? The water? Join the Environmental CSI class at Windy Peak and use your investigative skills to find out what is making them sick and decide how to fix it.

In this class we will use inquiry-based activities, conflict resolution and mediation, role playing and simulations, small group work, lab activities, and outdoor exploration of the natural environment to explore all sides of different environmental issues that can affect a community. We will hike to an abandoned mine, perform water tests, and participate in problem-solving simulations and games to ultimately figure out the cause of the epidemic. Then we will look at possible ways to clean up the problem and weigh economic and social costs along with the environmental concerns. The class will culminate with a mock town hall meeting in which the students will decide the fate of Silver City and its residents. The Environmental CSI class will encourage you to use your knowledge to become an active community member, both locally and globally.

## AQUATIC FIELD BIOLOGY \$425

Do you like playing in the water, getting muddy, or evening collecting bugs? This week we will become aquatic biologists, anglers, chemists, and even "recreationologists". In this STEAM based class, students will determine the viability of life in the aquatic environment surrounding Windy Peak Outdoor Lab. Students will expand upon their knowledge of the ecosystem pyramid as it applies to the riparian ecosystem at Windy Peak. We will have fun making new friends and participating in the following activities as part of our study:

- Take part in an electrofishing survey of Nelson Pond with an Aquatic Biologist from Colorado Parks and Wildlife
- Identify different species of trout and macroinvertebrates
- Measure, draw and collect information about water features at Windy Peak
- Analyze the chemical makeup of the water features surrounding Windy Peak
- Explore and compare microscopic organisms that thrive in water in mountain aquatic ecosystems
- Participate in aquatic "recreationology" activities at Wellington Lake
- Take part in fly-fishing and tying your own flies with Trout Unlimited
- Learn about water from an artist's point of view