Catalog of STEM Activities at Colorado Adventure Point – 1 hour each

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Biology

Nature Walk Scavenger Hunt and Microscope Observation

Nature Walk Scavenger Hunt and Microscope Observation

Students will collect samples during a nature walk scavenger hunt and then observe their findings under a microscope. They will explore the diversity of the natural world and learn to use microscopes for scientific investigation.
Topics: Biodiversity, Observation, Scientific Tools
Ages: 7-10 years

Grades: K-5th

Engineering

Robohand

Robohand

Students will learn about biomimicry and the mechanics of movement by designing and building a simple robotic hand. They will explore how tension, flexibility, and simple mechanisms like strings and joints can mimic the movement of human fingers.
Topics: Biomimicry, Mechanics, Engineering Design Process
Ages: 8-12 years

Grades: 2nd -6th

Suspension Bridge

Suspension Bridge

Students will explore structural engineering by building a suspension bridge using simple materials. They will investigate how tension and compression work together to create stable structures.
Topics: Structural Engineering, Tension and Compression, Problem-Solving
Ages: 8-12 years

Grades: 2nd -6th

Chair Challenge

Chair Challenge

Students will explore balance, stability, and weight distribution by designing and constructing a chair that can support a small object or figure. They will apply problem-solving and structural engineering principles to create a sturdy design.
Topics: Structural Engineering, Balance, Stability
Ages: 9-12 years

Grades: 3rd -6th

Tower Challenge

Tower Challenge

Students will build the tallest and most stable tower possible using everyday materials. They will explore balance, stability, and how structural shapes contribute to strength.
Topics: Structural Engineering, Balance, Stability
Ages: 8-13 years

Grades: 3rd -7th

Elevator Made of Cardboard (Egglevator)

Elevator Made of Cardboard That Needs to Hold an Egg

Students will design and construct a functional elevator using cardboard and string that can safely carry an egg. They will learn about pulleys, tension, and load distribution.
Topics: Mechanics, Load Distribution, Engineering Design Process
Ages: 9-12 years

Grades: 4th - 6th

Build a Pipeline Using Cups, Straws, and Water

Build a Pipeline Using Cups, Straws, and Water

Students will create a working pipeline to transport water using simple materials. They will explore the challenges of designing efficient systems and preventing leaks.
Topics: Fluid Dynamics, Systems Engineering, Problem-Solving
Ages: 9-12 years

Grades: 4th – 7th

Building a Tower to Avoid Flooding

Building a Tower to Avoid Flooding

Students will design and build a tower that can withstand simulated flooding while keeping an object safe. They will explore concepts of waterproofing and structural stability.
Topics: Structural Engineering, Water Resistance, Problem-Solving
Ages: 7-12 years

Grades: 2nd – 7th

Stick and Cup Challenge

Stick and Cup Challenge

Students will balance cups and sticks in creative ways to create stable structures. They will explore how balance and weight distribution contribute to stability.
Topics: Balance, Weight Distribution, Structural Engineering
Ages: 7-11 years

Grades: K – 6th

Physics

Stop That Ball

Stop That Ball

Students will explore energy and motion by designing a system to stop a bouncy ball using cardboard and creative materials. They will investigate how force and friction influence the ball's movement.
Topics: Energy Transfer, Friction, Motion
Ages: 8-12 years

Grades: 3rd – 7th

Robowheel

Robowheel

Students will explore energy transfer, balance, and motion by designing and building a Robo Wheel that spins. They will learn how weight distribution and friction affect the movement of their spinning toy.
Topics: Force and Motion, Energy Transfer, Friction
Ages: 7-12 years

Grades: K – 6th

Balloon Car

Balloon Car

Students will investigate how energy is stored and released by designing a car powered by a balloon. They will learn about propulsion and friction as they test and refine their designs.
Topics: Propulsion, Energy Transfer, Engineering Design Process
Ages: 7-11 years

Grades: 2nd – 7th

Zip Line

Zip Line

Students will learn about gravity, friction, and tension by designing and testing a zip line that can transport a small object. They will explore how changes in angle and weight affect the speed and efficiency of their design.
Topics: Gravity, Friction, Engineering Design Process
Ages: 5-13 years

Grades: K – 7th

Newton's Cradle

Newton's Cradle

Students will construct a Newton's Cradle using thick popsicle sticks and marbles to explore energy transfer and conservation. They will observe how momentum and kinetic energy move through a system.
Topics: Energy Transfer, Momentum, Mechanics
Ages: 9-12 years

Grades: 4th – 7th

Straw Rockets

Straw Rockets

Students will construct and launch straw rockets, experimenting with angles and force to optimize flight distance. They will explore the basics of aerodynamics and projectile motion in a quick, engaging 20-minute activity.
Topics: Aerodynamics, Projectile Motion, Energy Transfer

Ages: 7-12 years
Duration: 20 minutes with older ages

Grades: K-6th

Angry Birds Game (Building a Catapult)

Angry Birds Game (Building a Catapult)

Students will build a catapult and use it to launch objects in a game inspired by Angry Birds. They will learn about force, angles, and energy transfer while testing and refining their designs.
Topics: Energy Transfer, Force and Motion, Engineering Design Process
Ages:5-12 years

Grades: K- 6th

Chemistry

Barometer

Barometer

Students will learn how air pressure affects weather by constructing a barometer using simple materials. They will measure pressure changes and connect their observations to weather patterns.
Topics: Atmospheric Pressure, Weather, Data Collection
Ages: 7-12 years

Grades: 1st - 6th

Anemometer

Anemometer

Students will investigate how to measure wind speed by building a simple anemometer using materials such as straws, cups, and a pencil. They will learn how wind impacts weather and explore connections between wind speed and environmental changes.
Topics: Wind Speed, Weather Patterns, Data Analysis
Ages: 7-12 years

Grades: 1st - 6th

Windchime

Windchime

Students will explore the relationship between sound and vibration by designing and creating a windchime using various materials. They will experiment with different materials and lengths to observe how sound is produced and altered.
Topics: Sound Waves, Vibration, Design Process
Ages: 7-12 years

Grades: 1st - 6th

DIY Weather Station

DIY Weather Station

Students will integrate knowledge of weather tools by building a complete weather station, including a barometer, thermometer, and anemometer. They will use their station to collect and analyze weather data over time.
Topics: Weather Measurement, Environmental Science, Data Interpretation
Ages: 10-12 years

Grades: 2nd - 6th

Popcorn

Popcorn

Students will investigate the science behind popcorn by exploring how heat transforms kernels into popped corn. They will learn about physical changes and the role of water in the process.
Topics: Heat Transfer, Physical Changes, States of Matter
Ages: 8-12 years

Grades: 2nd - 6th

Windmill Made of Straws and Cardstock

Windmill Made of Straws and Cardstock

Students will explore renewable energy by constructing a windmill using straws and cardstock. They will experiment with blade designs and configurations to optimize energy capture.
Topics: Renewable Energy, Mechanics, Engineering Design Process
Ages: 9-12 years

Grades: 3rd - 7th

Using a Stream Table

Using a Stream Table

Students will use a stream table to investigate how water flow shapes the land, creating erosion, deposition, and sedimentation. They will model natural processes to explore earth science concepts.
Topics: Erosion, Landforms, Earth Processes
Ages: 6-12 years

Grades: K – 8th

Making Crystals with Borax

Making Crystals with Borax

Students will create crystals using borax and warm water, observing how solutions and evaporation lead to crystal formation. This 20-minute activity introduces them to the basics of crystallization and physical changes.
Topics: Crystal Formation, Solutions, Physical Changes
Ages: 6-12 years
Duration: 20 minutes

Grades: K – 8th

Alka-Seltzer Rockets

Alka-Seltzer Rockets

Students will build and launch rockets powered by Alka-Seltzer and water. They will learn about chemical reactions, gas production, and propulsion.
Topics: Chemical Reactions, Propulsion, Energy Transfer
Ages: 5-12 years

Grades: K – 8th