Chapel Rock

All of our activities are developed and refined by professional outdoor educators, are well-suited for middle school (grades 5-8), and reference Next Generation and Arizona science and education standards. Schools visiting 3-days, 2-nights generally participate in 6-8 activities (~14 hours).

Activities at a glance □

- Energy
- **Aspen Creek Trek**
- Creek Studies (stream flow dependant)
- Bones
- Cycle Factory
- Smokey
- Shelter Building
- Geocaching
- Ecosystems
- Rocks
- **Team Building**
- Climbing Tower and Zipline

***Bold** activities are suggested for all visiting school groups.
*These activities are subject to change and some activities are not offered during certain times of the year.

Group Challenge (included in every program)

Activity Summary: All visiting students are introduced to camp with a big group game to promote one of our camp rules: Have fun! After that, they break up into their activity groups and play a game in which they learn each other's names as well as the names of their staff leader and chaperones. They also take this time to create their own contract to foster accountability to their learning experience while at camp.

Physical Science

Energy

Standards:

Next Gen:

- *MS-PS3-2.* Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
- *MS-PS3-4.* Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.

Arizona:

- *6.P1U1.2.* Plan and carry out an investigation to demonstrate that variations in temperature and/or pressure affect changes in state of matter.
- *6.P4U2.5.* Analyze how humans use technology to store (potential) and/or use (kinetic) energy.

Activity Summary:
Students will participate in experiments and investigations involving potential and kinetic energy and the effects of temperature on molecules. Using Alka-Seltzer and water to create a chemical reaction, students will create film canister bottle rockets. This fun experiment will use water temperature as the variable, and allow students to work together to maximize the kinetic energy of the rocket.

Life Science

Aspen Creek Trek

Standards:

Next Gen:

- *MS-LS2-1.* Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- *MS-LS2-4.* Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Arizona State:

- *6.L2U3.12.* Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors.
- *6.L2U1.13.* Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.

Activity Summary:

Students will venture out on a public trail that runs along Aspen Creek. Every trek is different depending on the season and the whims of nature that present themselves. However, each trek will focus on the relationships between flora and fauna in Prescott's ponderosa pine forest ecosystem. Students will also gain a sense of human dimensions of environment and stewardship of the environment.

Creek Studies

Standards:

Next Gen:

- *MS-LS2-5.* Evaluate competing design solutions for maintaining biodiversity and ecosystem services. *
- *MS-ESS3-3.* Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. *

Arizona State:

- *6.L2U3.11.* Use evidence to construct an argument regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems.
- *6.L2U1.13.* Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.

Activity Summary:

Students will explore Aspen Creek and go through the inquiry process to answer the question: "Is this water healthy?" Through observations and the collection of macroinvertebrates, students will be able to draw a simply conclusion about the pollution levels, and oxygen levels in the creek. They will also be challenged to consider what the potential sources of pollution, the important of high water quality, and how to reduce human impact on the freshwater systems.

Bones

Standards:

Next Gen:

- *MS-LS4-2.* Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
- *MS-LS4-6.* Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

Arizona:

- *6.L2U3.12.* Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors.
- *7.L1U1.11.* Construct an explanation for how organisms maintain internal stability and evaluate the effect of the external factors on organisms' internal stability.

Activity Summary:

Students will study animal skeletal functions and adaptations. Students will also learn about physical owl adaptations and will ultimately learn about their diet through the dissection of owl pellets. The dissection process will involve identifying bones, making observations about owl diets, and drawing a conclusion about what that individual barn owl consumed.

Earth and Space Science

Cycle Factory

Standards:

Next Gen:

- *MS-ESS3-4.* Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
- *MS-ESS2-1.* Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- *MS-ESS2-4.* Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

Arizona:

- *6.L2U1.11.* Use evidence to construct an argument regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems.
- *6.L2U1.14.* Construct a model that shows the cycling of matter and flow of energy in ecosystems.

Activity Summary:

The students will join us at our "cycle factory" where they will learn about the water, soil, and air cycles. Using that knowledge, students will build a "tree" in a relay-style race. They will wear hardhats and use wiffle balls, chutes, pulleys, fake toilets, and imagination to build that model tree as well as discuss how pollution can enter each cycle and what humans can do to reduce and mitigate pollution.

Smokey

Standards:

Next Gen:

- *MS-ESS3-2.* Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- *MS-ESS3-3.* Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

Arizona State:

- *6.L2U3.11.* Use evidence to construct an argument regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems.
- *6.L2U3.12.* Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors.

Activity Summary:

Students will discuss what "ingredients" a fire needs to exist, and after learning fire safety, the students will create a campfire with their facilitator's guidance and supervision. They will also learn what factors control the ignition, size, and intensity of fires. By learning the science behind what fuels fires and what factors make fires dangerous and destructive, students will be able to brainstorm ways "you can prevent forest fires." Students will also learn the role of wildfires in nature.

Rocks

Standards:

Next Gen:

- *MS-ESS2-1.* Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
- *MS-ESS2-3.* Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.

Arizona State:

- *6.E1.* The composition of the Earth and its atmosphere and the natural and human processes occurring within them shape the Earth's surface and its climate.

Activity Summary:

Students will learn and discuss the three basic types of rocks, how they are formed, and what they are made up of. Students will then learn a brief history of gold mining in Arizona and how to pan for gold. Students will take turns panning for various minerals including real gold flakes.

Engineering, Technology, and Applications of Science

Shelter Building

Standards:

Next Gen:

- MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of a problem
- MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Arizona:

- 6.P4U2.5. Analyze how humans use technology to store (potential) and/or use (kinetic) energy.
- Core Ideas for Using Science: Grade 6: U2: The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.

Activity Summary:

Students will discuss shelters from all over North America and will critically think about what resources were/are available and what needs a shelter is designed to meet. Students will then use natural materials from their immediate surroundings to build a model mini shelter that meets certain constraints. They will also have the ability to test and modify their shelter, ideally resulting in a greater understanding of the process of engineering. Students will be encouraged to think creatively about applications for our current human needs and limits.

Geocaching

Standard(s):

Next Gen:

- *MS-ESS1-3.* Analyze and interpret data to determine scale properties of objects in the solar system.
- *MS-PS4-3.* Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

Arizona:

- *6.E2U1.7.* Use ratios and proportions to analyze and interpret data related to scale, properties, and relationships among objects in our solar system.
- *Education Technology* *Strand 4* *Concept 2* – Plan and manage activities to develop solutions to answer a question or complete a project PO2 Generate solutions from different perspectives using collected resources and data.
- *Education Technology* *Strand 6* *Concept 4* – Transfer current knowledge to learning of new technologies PO1 - Transfer understanding of current input/output devices, symbols and icons, and applications to learning new technologies.

Activity Summary:

Students will work in small groups to complete an onsite geocaching course. Each student will have the opportunity to use a GPS unit and locate small treasures. They will work as a team and incorporate their knowledge of scale, distance, and direction to effectively use the tools they are given. This activity culminates in the locating of a final geocache using a map and compass and the information they've collected while geocaching.

Team Building

Team Challenge

Activity Summary:

Students will work together on our Challenge Course to complete various activities. Challenges begin small allowing students to discover the building blocks of effective communication and planning. As their skills improve, the challenges get increasingly more

difficult culminating with the group attempting low elements (permanent). Throughout the process students are given the opportunity to reflect on their process and refine their team skills.

Climbing Tower/Zipline

Activity Summary:
Students get first hand experience investigating the difference between comfort zones and learning zones. Together, they discuss and share effective ways to deal with fear and stress as well as support others. After setting a goal, they put their learning to the test and challenge themselves on our rock wall. Participants who make it to the top have the option to ride down the zip line. **There is an additional per person cost for this activity.**

Evening Activities (complimentary)

Game Night

Activity Summary:
Students warm up with a few simple individual games before grouping up for an interactive, wildly fun, and hilarious large group game that gives students an opportunity to build community.

Campfire

Activity Summary:
Students have a fun, interactive, and meaningful classic campfire to close out their final night at Science camp. With bench seating around a blazing fire students will have fun with a mixture of songs, skits, jokes, stories and of course s'mores.