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Guide to Educational & Recreational Experiences for Student Groups is published by Flagstaff Convention & Visitors Bureau

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GUIDE TO EDUCATIONAL & RECREATIONAL EXPERIENCES FOR STUDENT GROUPS
Flagstaff Convention & Visitors Bureau
The Arboretum at Flagstaff is located on 200 acres within the Coconino National Forest, and is home to 2,500 species of plants in greenhouses, gardens and natural habitats. It also encompasses horticultural collections, rare plant specimens, historic buildings, and a nature trail through the Ponderosa pine forest. As a research and environmental education center, the Arboretum offers guided tours and school programs focused on the life sciences and led by professional environmental educators.

EDUCATIONAL PROGRAMS, TOURS & FEES

90-minute school group tours (Preschool-Grade 12) including 45-minute garden general tour and grade-specific program.

Per participant $5; includes Arboretum admission
Minimum participants: 10

GRADE-SPECIFIC THEMES WITH ARIZONA ACADEMIC CONTENT STANDARDS FOR SCIENCE

Preschool/Kindergarten: The Senses
Environmental educators lead children on a tour of the gardens where they explore with all five senses. Highlights include listening to birds by the pond, smelling plants in the herb garden, and feeling different types of conifers on the woodland path.

Arizona Academic Content Standards covered:

Life Science Concept 1 • Understand that the basic structures in plants and animals serve a function.
   PO3 Identify the five senses and their related body parts.
   PO1 Distinguish between living and nonliving things.

Life Science Concept 3 • Understand the relationships among various organisms and their environment.
   PO1 Identify some plants and animals that exist in the local environment.
   PO2 Identify that plants and animals need the following to grow and survive: food, water, air, space.
Grade 1: Seed Dispersal
The program introduces students to a variety of ways that seeds disperse themselves in nature. Hands-on classroom activities include matching seeds with their parent plants and studying seed shapes. A visit to the greenhouse and gardens allows kids to examine different seed-bearing plants up close.

Arizona Academic Content Standards covered:
Life Science Concept 1 • Understand that the basic structures in plants and animals serve a function.
   PO1 Identify the following characteristics of living things: growth, development, reproduction and response to stimulus.
   PO2 Compare observable features of living things: movement, protection, respiration, support.

Life Science Concept 3 • Understand the relationships among various organisms and their environment.
   PO1 Identify some plants and animals that exist in the local environment.
   PO2 Compare the habitats in which plants and animals live.
   PO3 Describe how plants and animals with a habitat are dependent on each other.

Grade 2: Plant Life Cycles
Students learn about the different stages in plant development, from seed to death or dormancy. A greenhouse tour and classroom activity teaches them how our horticulturists grow and care for native plants.

Arizona Academic Content Standards covered:
Life Science Concept 2 • Understand the life cycles of plants and animals.
   PO3 Compare the life cycles of various organisms.

Grade 3: Wetland Habitat
Students learn about the web of life as they study the endangered fish living in the pond. Environmental educators help them identify aquatic invertebrates from the wetland. Students share their findings with classmates in an outdoor classroom with a micro-camera.

Arizona Academic Content Standards covered:
Life Science Concept 3 • Understand the relationships among various organisms and their environment.
   PO1 Identify the living and nonliving components of an ecosystem.

PO2 Examine an ecosystem to identify microscopic and macroscopic organisms.
PO3 Explain the interrelationships among plants and animals in different environments: producers, consumers, decomposers.
PO4 Describe how plants and animals cause change in their environment.

Life Science Concept 4 • Identify plant and animal adaptations.
   PO1 Identify adaptations of plants and animals that allow them to live in specific environments.
   PO2 Describe ways that species adapt when introduced into new environments.
   PO3 Cite examples of how a species’ inability to adapt to changing conditions in the ecosystem led to the extinction of that species.

Grade 4: Pollination
Students find out how plants reproduce... with a little help from the birds and the bees! They identify the parts of a flower and learn how flowers attract insects, birds, and bats for pollination. Hands-on activities support concepts related to the plant/animal interactions necessary for fertilization and seed development. These activities are reinforced using flowers from the Butterfly Garden.

Arizona Academic Content Standards covered:
Life Sciences Concept 1 • Understand that basic structures in plants and animals serve a function.
   PO1 Compare structures in plants and animals that serve different functions in growth and survival.
   PO2 Classify animals by identifiable group characteristics: Vertebrates/Invertebrates.

Life Science Concept 4 • Identify plant and animal adaptations.
   PO1 Recognize that successful characteristics of populations are inherited traits that are favorable in a particular environment.
   PO2 Give examples of adaptations that allow plants and animals to survive: camouflage, mimicry, physical, mutualism.
Grade 5: Forest Ecology
Students tour the nature trail with an environmental educator and discover how fires in the ponderosa pine forest benefit both wildlife and plants. They learn to recognize indicators of healthy and unhealthy forests, as well as signs of wildlife. During extended programs, students also find out how to identify and remove invasive species.

Arizona Academic Content Standards covered:

Science in Personal and Social Perspectives Concept 1 • Describe the interactions between human populations, natural hazards, and the environment.
  PO1 Explain the impacts of natural hazards on habitats.
  PO2 Propose a solution, resource, or product that addresses a specific human, animal, or habitat need.
  PO3 Evaluate the possible strengths and weaknesses of a proposed solution to a specific problem relevant to human, animal or habitat needs.

Grade 6: Biodiversity
Students are introduced to a selection of endangered plants. They explore conditions that cause species to become endangered (or threatened) and discuss our efforts to help them. This program includes a garden tour and a visit to meadows and forested areas.

Arizona Academic Content Standards covered:

Life Sciences Concept 1 • Understand the relationships between structures and functions of organisms.
  PO1 Explain the importance of water to organisms.
  PO6 Relate the following structures of living organisms to their functions: Plants-transpiration, absorption, response to stimulus.

Life Sciences Concept 3 • Analyze the relationships among various organisms and their environment.
  PO1 Explain that sunlight is the major source of energy for most ecosystems.
  PO2 Describe how the following environmental conditions affect the quality of life: Water quality, climate, population density, smog.

Grades 7–12: Ecological Restoration
Middle- and high-school students tour the gardens and nature trail with an environmental educator, focusing on the importance of native plants in the landscape. They also work alongside researchers on a restoration activity.

Arizona Academic Content Standards covered:

Life Science Concept 3 • Analyze the relationships among various organisms and their environment.
  PO1 Compare food chains in a specified ecosystem and their corresponding food web.
  PO2 Explain how organisms obtain and use resources to develop and thrive in: inches, predator/prey relationships.
  PO3 Analyze the interactions of living organisms with their ecosystems: limiting factors, carrying capacity.
  PO4 Evaluate data related to problems associated with population growth and possible solutions.
  PO5 Predict how environmental factors affect survival rates in living organisms.

Life Science Concept 4 • Identify structural and behavioral adaptations.
  PO1 Explain how an organism’s behavior allows it to survive in an environment.
  PO2 Describe how an organism can maintain a stable internal environment while living in a constantly changing external environment.
  PO3 Determine characteristics of organisms that could change over several generations.
  PO4 Compare the symbiotic and competitive relationships in organisms with an ecosystem.
  PO5 Analyze the following behavioral cycles of organisms: hibernation, migration, dormancy.
  PO6 Describe the following factors that allow for the survival of living organisms: protective coloration, beak design, seed dispersal, pollination.

Ar-bo-re-tum: A place where trees, shrubs, and herbaceous plants are cultivated for scientific and educational purposes.
The Elden Pueblo Archaeological Project is a cooperative endeavor between the Coconino National Forest, the Arizona Natural History Association and the Arizona Archaeological Society to provide educational opportunities in archaeology. Elden Pueblo is a 60-80 room pueblo of the prehistoric Sinagua culture and a Hopi ancestral site. Elden Pueblo is open to the public and is located one mile north of the Flagstaff Mall on U.S. Highway 89. The following archaeological programs provide hands-on mapping, excavation, laboratory and analytical experiences for participants under professional supervision. Through these personal experiences, participants are made aware of archaeological concepts, values, laws and practices. Join the quest to learn about past and present Pueblo cultures by investigating the clues left behind by ancient peoples.

ON-SITE EDUCATIONAL PROGRAMS & FEES

Programs for school and other groups include a hands-on experience at Elden Pueblo. Your group will explore the site, participate in actual excavations, examine artifacts and be part of the on-going research into the lives of the Sinagua people. Specialized programs can be designed to meet your curriculum and educational needs.

One-hour tour and activity
1-15 people $100; 16-30 people $150

Four-hour Archaeological Education Program
1-15 people $250; 16-30 people $325

Eight-hour Archaeological Education Program
1-15 people $350; 16-30 people $450

Elden Pueblo
One mile north of the Flagstaff Mall on U.S. Highway 89 at Townsend-Winona Rd.
Lisa Deem
Elden Pueblo Program Manager
928-527-3452
eldenpueblo@npgcable.com
www.fs.fed.us/r3/coconino/forest-resources/archeology/elden-pueblo
www.fs.usda.gov/detail/coconino/learning/history-culture


LESION PLAN

Elden Pueblo Project Site Education Program

Age/Grade Level
This program is correlated to Arizona State Standards for Grades 4 through 8. Variations of the program are presented through college level.

Duration
The standard program is four hours long, or half-day program.

Group Size
Groups up to 30 students, plus one to three educators/chaperones, depending on group needs.

Goals
This program is designed to bring understanding of the science of archaeology to the public, particularly school-age children. It attempts to create awareness and appreciation of the importance of protecting cultural heritage sites.

Procedures
This is accomplished by having students:

- Establish a hypothesis or research question at the beginning of the program.
- Engage in hands-on activities.
- Make observations about the site, the people and their relationship to the environment.
- Study the things left behind.
- Participate in site excavations.
- Practice ancient hunting techniques.
- Analyze what they learned in relation to their world today.

Essential Questions

- What is archaeology? What do archaeologists do?
- How do archaeologists learn about the past?
- Why is learning about the past important?
- How did the prehistoric people interact with their environment?
- How can we protect cultural heritage sites?

PROGRAM SCHEDULE

5 minutes Meet in parking lot and go over site rules.
30 minutes Introduction to Elden Pueblo history in community room.
30 minutes Students pair up with a class partner for remainder of the program. Education workbooks are provided by staff. Students walk around the Pueblo, making observations and answer a set of questions in the workbook relating to their observations.
15 minutes Break - snack, water and bathrooms.
1 hour Divide class pairs into two groups.
Group 1 goes to Excavations
Excavations includes:
- Data collecting.
- Trench provenience and measurements.
- Proper excavation techniques.
- Trench analysis.

Group 2 goes to Artifact Analysis and Hunting Games
Artifact Analysis includes:
- Stratigraphic and chronological sequences of a Sinagua pit house.
- Interpretation of the pit house artifacts in relation to their use in Sinagua culture.
- Students organize and classify the artifacts, then record the results.

Hunting Games includes:
- Students are given a brief history on the development of hunting weapons in the southwest.
- Student are given rules to follow to ensure safe behaviors and appropriate procedures.
- Students participate in atlatl and rabbit stick throwing.

30 minutes Lunch
1 hour Group rotations.
Group 2 goes to Excavations
Group 1 goes to Artifact Analysis and Hunting Games

15 minutes Wrap-up
Closing inquiries:
- What new information did students learn?
- Where did the people go when they left?
- Was student's research question answered?
- Any new questions or observations?

Assessment
Teachers receive in their packets a simple questionnaire for students, to be filled out prior to any instruction relating to the site visit. Teachers will bring the completed pre-questionnaires to the site. Teachers and students will complete post-program evaluations on site.
Lowell Observatory offers private school programs daily throughout the year that may be reserved in one-hour blocks of time in the daytime, as well as 90-minute programs on certain evenings. Schools may choose from a number of multimedia presentations at a variety of levels, building tours or solar viewing, and telescope viewing in the evening. All programs are presented by a Lowell educator.

**EDUCATIONAL PROGRAMS & FEES**

- Private, one-hour daytime program includes two multimedia presentations and/or historic tours. The Cosmic Cart program is also available. Most groups choose one multimedia program and one building tour.
- One-hour daytime program $90
- Cosmic Cart program (interactive demonstrations) $125
- Private, 90-minute evening program includes one multimedia presentation and exclusive access to the telescopes for viewing (weather permitting.)
- 90-minute program with telescope viewing $180
- All private programs also include access to the Visitor Center’s Discover the Universe exhibit hall.

**BASIC MULTIMEDIA PRESENTATIONS**

**PRESCHOOL - GRADE 2**

- Voyage to Space • An exciting introduction to space.
- The Planets • Learn about the planets in our solar system.

Lowell Observatory
1400 W. Mars Hill Rd.
Flagstaff, AZ 86001
Mary DeMuth
928-233-3235
demuth@lowell.edu
lowell.edu

Private and Group Programs:
lowell.edu/visit_programs.php
Online booking is available.
GRADE 3 - ADULT
Grand Tour of the Solar System • Take an in-depth look at the sun and its family of planets, moons, asteroids and comets.
Pluto Discovery • Experience Pluto’s discovery at Lowell Observatory in 1930, and hear about our current understanding of Pluto and its many unusual features.
The Current Night Sky • Hear an overview of the stars, planets and other celestial objects visible in the current night sky.
Comets, Asteroids and Dinosaurs • Find out about the nature of comets and asteroids, including how one or more impacts may have led to the extinction of the dinosaurs.

GRADE 5 - ADULT
Life on Other Worlds • Search the universe for possible signs of life.
Mars: The Red Planet • Explore Mars’s volcanoes, canyons, possible past water resources and more.
Highlights of the Hubble Space Telescope • View amazing images taken with this telescope in space.

GRADE 7 - ADULT
The Lives of Stars • Explore our sun's life and the dramatic formation of neutron stars, pulsars and black holes.
Galaxies and the Expanding Universe • Hear about quasars and galaxies, including the Milky Way.
Discovery at Lowell Observatory • Learn about Lowell’s distinguished history, the discovery of Pluto and the cutting-edge research taking place at Lowell today.

OTHER PROGRAMS AND TOURS
GRADE 3 - ADULT (EVENING ONLY)
Mini-Planetarium • Explore the constellations, stars and deep sky objects that are visible in the night sky, or zoom out through the Solar System to the edge of the known universe.

ALL AGES
Cosmic Cart • Enjoy fun and interactive demonstrations illustrating scientific concepts. Dry ice, liquid nitrogen and various other chemicals are used. (This program is $125.00)
Historic Rotunda Tour • Tour the building that contains artifacts and historic astronomy displays.

ALL AGES (DAYTIME ONLY)
Clark Telescope Tour • See the historic 24-inch Alvan Clark refractor and dome.
Pluto Telescope Tour • Visit the 13-inch telescope used to discover Pluto.
Solar Telescope Viewing • View the sun, our amazing star, through a filtered telescope.

GRADE-SPECIFIC PROGRAMS WITH ARIZONA ACADEMIC CONTENT STANDARDS FOR SCIENCE

Preschool - Grade 2: Objects in the Sky
Arizona Academic Content Standards covered:
Earth and Space Science Concept 2 • Identify Objects in the Sky
Winning: Identify evidence that the Sun is the natural source of heat and light on the Earth (e.g., warm surfaces, shadow, shade.)
Winning: Compare celestial objects (e.g., Sun, Moon, stars) and transient objects in the sky.
Winning: Describe observable changes that occur in the sky (e.g., clouds forming and moving, the position of the Moon.)

Grade 3: Properties of Earth Materials
Arizona Academic Content Standards covered:
Earth and Space Science Concept 1 • Properties of Earth Materials
Winning: Describe fossils as a record of past life forms.

Grade 4: Earth’s Processes and Systems
Arizona Academic Content Standards covered:
Earth and Space Science Concept 2 • Earth’s Processes and Systems
Winning: Analyze evidence that indicates life and environmental conditions have changed (e.g., tree rings, fish fossils in desert regions, ice cores.)
Grade 5: Processes Acting on the Earth

Arizona Academic Content Standards covered:
Earth and Space Science Concept 2 • Understand the Processes Acting on the Earth and their Interaction with the Earth Systems
PO1 Describe how the Moon’s appearance changes during a four-week lunar cycle.
PO2 Describe how Earth’s rotation results in day and night at any particular location.
PO3 Distinguish between rotation and revolution.
PO4 Describe the role of gravity as an attractive force between celestial objects.

PO5 Identify the following major constellations visible (seasonally) from the Northern Hemisphere:
- Orion
- Ursa Major (Great Bear)
- Cygnus
- Scorpius
- Cassiopeia

PO6 Explain the relationship among common objects in the solar system, galaxy and the universe.

Grade 6: Relationships of the Earth and Other Objects in the Solar System

Arizona Academic Content Standards covered:
Earth and Space Science Concept 3 • Understand the Relationships of the Earth and Other Objects in the Solar System
PO1 Identify the known planets of the solar system.
PO2 Describe the distinguishing characteristics of the known planets in the solar system.
PO3 Describe various objects in the sky (e.g., asteroids, comets, stars, meteors.)
PO4 Describe the change in position and motion of the following objects in the sky over time:
  - Real motion - Moon, planets
  - Apparent motion (due to the motion of the Earth) - Sun, Moon, stars
PO5 Explain the apparent motion of the Sun and stars.
PO6 Describe efforts to explore space (e.g., Apollo missions, space shuttles, Hubble space telescope, space probes.)

PO7 Explain the seasons in the northern and southern hemispheres in terms of the tilt of the Earth’s axis relative to the Earth’s revolution around the Sun.

PO8 Describe efforts to explore space (e.g., Apollo missions, space shuttles, Hubble space telescope, space probes.)

PO9 Explain the relationship among common objects in the solar system, galaxy and the universe.

Grades 8-12: Origin and Evolution of the Earth; Origin and Evolution of the Universe

Arizona Academic Content Standards covered:
Earth and Space Science Concept 3 • Analyze the Factors Used to Explain the History and Evolution of the Earth (Earth Origin/System)
PO1 Describe the scientific theory of the origin of the solar system (solar nebula hypothesis).
PO2 Describe the characteristics, location and motions of the various kinds of objects in our solar system, including the Sun, planets, satellites, comets, meteors and asteroids.
PO3 Explain the phases of the Moon, eclipses (lunar and solar), and the interaction of the Sun, Moon and Earth.

Concept 4 • Origin and Evolution of the Universe: Analyze the Factors Used to Explain the Origin and Evolution of the Universe
PO1 Describe the Big Bang Theory as an explanation for the origin of the universe.
PO2 Describe the fusion process that takes place in stars.
PO3 Analyze the evolution of various types of stars using the Hertzsprung-Russell (HR) diagram.
PO4 Compare the evolution (life cycles) of stars of different masses (low and high mass.)
PO5 Explain the formation of the light elements in stars and the heavier elements (what astronomers call "metals" in supernova explosions).
PO6 Explain the evolution and life cycles of galaxies.
Pioneer Museum & Riordan Mansion State Historic Park

The Pioneer Museum offers tours steeped in the diversity of northern Arizona history including early pioneers, Route 66 and more. The museum exhibits are housed in the 1908 County Hospital building. Tours include an outdoor trail that covers the early days of the mountain men and the Beale road through to the settlement of Flagstaff. This portion of the property tour includes a the 1908 pioneer home, 1880s ranch cabin, 1929 steam engine, 1940s caboose and logging wheels.

The Riordan Mansion offers tours of an original 1904 Craftsman duplex preserved with original furnishings. They tell the story of brothers Timothy and Michael Riordan, prominent pioneer Flagstaff businessmen who developed a successful logging industry. They built this 13,000 square foot home in which they and their families shared side by side. The home was occupied by a member of the Riordan family continuously from 1904 until 1985, before being established as an Arizona State Historic Park.

EDUCATIONAL PROGRAMS & FEES

Pioneer Museum interactive programs provide a choice of educational activities including beeswax candle dipping, soap making or a reenactment camp. Call for complete list of current programs available.

Pioneer Museum guided tour only
Per student $2; one adult free per 5 paid students
Group minimum 6; maximum 30 for all tours and programs

Pioneer Museum guided tour and interactive program
Per student $4; per adult $6; adults free if not participating in activity
Private walking tours of historic downtown Flagstaff
Call for details and rates

Riordan Mansion State Historic Park guided tours
Per student $4; per adult $6
Group minimum 15; maximum 30
GRADESPECIFICPROGRAMSWITHARIZONA
ACADEMICCONTENTSTANDARDSFORSOCIALSTUDIES

Grades 3-6: History Standards

Arizona Academic Content Standards covered:

Foundations
- 1SS-F2-PO1 Pioneer Museum / Riordan Mansion
- 1SS-F2-PO3 Pioneer Museum / Riordan Mansion
- 1SS-F3-PO1 Pioneer Museum / Riordan Mansion
- 1SS-F3-PO2 Riordan Mansion
- 1SS-F3-PO3 Pioneer Museum / Riordan Mansion

Essentials
- 1SS-E1-PO1 Pioneer Museum / Riordan Mansion
- 1SS-E1-PO2 Pioneer Museum
- 1SS-E1-PO3 Pioneer Museum / Riordan Mansion
- 1SS-E1-PO4 Pioneer Museum / Riordan Mansion

Focus
- 1SS-E4-PO3 Pioneer Museum / Riordan Mansion
- 1SS-E4-PO4 Pioneer Museum / Riordan Mansion
- 1SS-E5-PO3 Pioneer Museum
- 1SS-E8-PO1 Pioneer Museum
- 1SS-E8-PO3 Pioneer Museum
- 1SS-E8-PO4 Pioneer Museum
- 1SS-E8-PO5 Pioneer Museum
- 1SS-E8-PO6 Pioneer Museum
- 1SS-E8-PO8 Pioneer Museum

Grades 3-6: Geography Standards

Arizona Academic Content Standards covered:

Foundations
- 3SS-F2-PO1 Pioneer Museum / Riordan Mansion
- 3SS-F2-PO2 Pioneer Museum / Riordan Mansion
- 3SS-F2-PO3 Pioneer Museum / Riordan Mansion
- 3SS-F2-PO4 Pioneer Museum / Riordan Mansion
- 3SS-F2-PO5 Pioneer Museum / Riordan Mansion
- 3SS-F2-PO6 Pioneer Museum / Riordan Mansion

Focus
- 3SS-E2-PO1 Pioneer Museum / Riordan Mansion
- 3SS-E2-PO3 Pioneer Museum / Riordan Mansion
- 3SS-E2-PO4 Pioneer Museum / Riordan Mansion
Willow Bend is a non-profit environmental education center and a project of the Coconino Natural Resource Conservation District, and is dedicated to nurturing a sense of place through hands-on education programs for students of all ages. Their mission is to provide education outreach services that build environmental awareness and an ethic of responsible stewardship of our natural and cultural resources.

**EDUCATIONAL PROGRAMS, FIELD TRIPS & FEES**

Willow Bend offers 49 in-class, grade specific and standards-aligned programs designed to supplement teachers’ science curricula. Programs run 50 minutes unless otherwise specified. Field trips are offered September through October and April through May, and focus on creating a connection between students and their earth through observation, activities, songs, and critical thinking exercises.

Per student per hour $5
One class (averaging 25 students) per program

**GRADE-SPECIFIC PROGRAMS WITH ARIZONA ACADEMIC CONTENT STANDARDS FOR SCIENCE**

More than 25 standards-aligned programs are available for Middle and High School teachers to choose from—interactive, indoor classroom-style presentations and hands-on, outdoor field trips. Programs are also adaptable to focus on specific standards.

**Middle School:** Programs at this level cover skills from Strand 1 (Inquiry Process), and focus on concepts from Grade 7 Strand 4 (Life Science), Strand 6 (Earth and Space Science), Grade 8 Strand 3 (Science in Personal and Social Perspectives), and Strand 4 (Life Sciences).

**High School:** Programs cover concepts from most Strands and specifically from Strand 3 (Science in Personal and Social Perspectives), Strand 5 (Physical Science) and Strand 6 (Earth and Space Science).
FIELD TRIPS

To ensure a high-quality educational experience, Willow Bend works with only one class at a time. Contact Willow Bend or visit the website for detailed program descriptions, Arizona Academic Content Standards, required or suggested prerequisites and other information.

All Grades

Flagstaff Recycling Tour (1 hour) • Join Willow Bend on a behind-the-scenes tour of the City recycling center. Learn about conservation and the 3Rs.

Willow Bend Discovery Field Trip (1 or 2 hours) • Explore the Discovery Room’s interactive exhibits focusing on the theme “Sustainable Living: It’s Easy Being Green.” Learn simple ways to lessen our impact on the Earth.

Kindergarten

Natural Senses Field Trip (1 hour) • Through a hike and games, younger students learn about nature through colors, shapes, textures and scents.

Grade 1

Incredible Insects (2 hours) • Explore the amazing world of local insects through exploration of the Willow Bend gardens.

Grade 2

Wacky Weather Field Trip (2 hours) • Learn about weather with a hike at Willow Bend into Sinclair Wash.

Grades 2-4

Plant Power Field Trip (1 hour) • Learn the importance of plant identification so that we can harness the power of plants.

Grade 4, Middle & High School

Water Quality Field Trip (2 hours) • Conduct pH, DO and other water quality tests at the Rio de Flag Wastewater Treatment Ponds.

Fire Ecology Field Trip (2 hours) • Learn how fire is a necessary part of our ponderosa pine forest ecology.

Grade 5 and Higher

Healthy Body, Healthy Earth Field Trip (1-2 hours) • Part 1: Learn the correlation between a healthy earth and healthy bodies. Part 2: Take a trip to New Frontiers grocery store to learn about ingredients, economics, labels, and more.

Middle and High School

Willow Bend Tour (1-2 hours) • An introduction to passive solar design, native gardens, solar panels, rainwater harvesting and ways to lessen our impact on the Earth.

EDUCATIONAL PROGRAMS

To ensure a high-quality educational experience, Willow Bend works with only one class at a time. Contact Willow Bend or visit the website for detailed program descriptions, Arizona Academic Content Standards, required or suggested prerequisites, and other information.

Kindergarten (Programs run 30 minutes unless otherwise specified)

Bats • Through stories and posters, learn how bats are like us!

Exploring Earthworms • By looking at live earthworms, learn more about these amazing animals and their role in composting.

Forest Friends • An introduction to the diversity of our Flagstaff forest ecosystems through forest artifact exploration.

From Trees to Paper • Learn the importance of trees, how they become paper, and why it is important to recycle.

Life in a Dead Tree • An introduction to the importance of snags for animals in the forest.

Recycling Rules! • Explore why recycling is so important and understand the basic rules of recycling in Flagstaff.

Seasons of Trees • Explore the lifecycle of Flagstaff trees.

Seeds on the Move • Learn how seeds are dispersed.

Tadpoles to Frogs • An introduction to metamorphosis and Arizona frogs and toads.

Grade 1 (Programs run 50 minutes unless otherwise specified)

Coyote Tales • Learn about the natural history of this very adaptable animal through Native American coyote tales.
Creature from Planet X • An introduction to the amazing arachnid family with plenty of spider surprises.
Exploring Earthworms • By looking at live earthworms, learn more about these amazing animals and their role in composting.
From Trees to Paper • Learn the importance of trees, how they become paper, and why it is important to recycle.
Incredible Insects • Learn the life cycle and body parts of these fascinating creatures.
Midnight Hunters: Owls • Learn the importance of these hunters as well as their unique body adaptations for catching prey.
Recycling Rules! • Explore why recycling is so important and understand the basic rules of recycling in Flagstaff.
Saddle Up! • An introduction to Flagstaff ranching history through historical ranch artifacts.
Snow: Animals in Winter • Students discover how different animals respond to snow.

Grade 2 (Programs run 50 minutes unless otherwise specified.)
Bats • Learn how bats find their food and their importance in nature.
Bird Brains • Explore the intelligence and natural history of the raven.
Exploring Earthworms • By looking at live earthworms, learn more about these amazing animals and their role in composting.
Life of a Bald Eagle • Learn about bald eagle adaptations and their history with humans.
Mammals • Discover about the many mammals of the Colorado plateau.
Plant Power! • Learn basic plant identification and the power of local plants.
Recycling Rules! • Explore why recycling is so important and understand the basic rules of recycling in Flagstaff.
Seeds on the Move • Learn how seeds are dispersed.
The Reason for a Flower • Learn about flower parts and pollination by examining real flowers.

Grade 3 (Programs run 50 minutes unless otherwise specified.)
Alien Plant Invaders • Learn why land managers are so concerned with “alien” plants invading Coconino County.
Downtown Flagstaff Geology (1 hour) • Discover the history and geology of downtown Flagstaff with a focus on historic buildings made of stone.
Erupting Earth • Explore different kinds of volcanoes and how they work with an emphasis on northern Arizona.

For the Birds • An introduction to bird watching and identifying local bird calls.
Plant Power! • Learn basic plant identification and the power of local plants.
Rock Talk (1 hour) • An introduction to igneous, sedimentary, and metamorphic rocks, including examples from northern Arizona.
Trash and the Three Rs • Learn how to reduce waste, reuse materials, and recycle in Flagstaff.

Grade 4 (Programs run 50 minutes unless otherwise specified.)
Coyote Tales • Learn about the natural history of this very adaptable animal through Native American coyote tales.
Erupting Earth • Explore different kinds of volcanoes and how they work with an emphasis on northern Arizona.
Fire Ecology • Discover the role of fire in our ponderosa pine ecosystem.
For the Birds • An introduction to bird watching and identifying local bird calls.
Grand Canyon Geology (1 hour) • Explore the layers of the Grand Canyon and how the Canyon was formed.
Groundwater in Flagstaff (1 hour) • Using a groundwater model, discover where Flagstaff water comes from and how we use it.
Images on Stone (1 hour) • Learn the importance of native rock art.
Living within your Climate: From Pueblo Times to Modern Times • Learn about sustainability through archaeology, focusing on northern Arizona.
Mystery Animal • Learn how the California condor has come back from the brink of extinction and is once again wild in Coconino County.
People of the Grand Canyon (1 hour) • Explore people’s activities in the Grand Canyon throughout history.
Plant Power! • Learn basic plant identification and the power of local plants.
Trash and the Three Rs • Learn how to reduce waste, reuse materials, and recycle in Flagstaff.
Water Quality (1 hour) • Learn the basics of water quality testing, focusing on pH testing.

Grade 5 (Programs run 50 minutes unless otherwise specified.)
BioBug and Health (1 hour) • Using the Willow Bend BioBug, understand the environmental health implications of green technology.
Clean and Green • Identify common household products, and discover alternative, non-toxic substitutes for common cleaning supplies.
Climate Change (1 hour) • Learn about the causes and consequences of climate change.
Erupting Earth • Explore different kinds of volcanoes and how they work with an emphasis on northern Arizona.
For the Birds • An introduction to bird watching and identifying local bird calls.
Healthy Body, Healthy Earth: Gardening • Learn what the health of our soil has to do with the health of our bodies.
Living within your Climate: From Pueblo Times to Modern Times • Learn about sustainability through archaeology, focusing on northern Arizona.
Midnight Hunters: Owls • Learn the importance of these hunters as well as their unique body adaptations for catching prey.
Ozone: The Good, the Bad, and the Ugly • An introduction to our atmosphere and effects of ozone degradation.
Plant Power! • Learn basic plant identification and the power of local plants.
Skulls • By using facial patterns, identify various local animal skulls.
Starry Skies (1 hour) • Understand the rotation and revolution of the earth and the stars we see.
Trash and the Three Rs • Learn how to reduce waste, reuse materials, and recycle in Flagstaff.

Grade 6 (Programs run 50 minutes unless otherwise specified.)
Adapt, Survive and Find Your Niche • Understand the roles of natural selection and adaptation in evolution.
Alien Plant Invaders • Learn why land managers are so concerned with “alien” plants invading Coconino County.
Bats • Learn characteristics of northern Arizona bats.
Erupting Earth • Explore different kinds of volcanoes and how they work with an emphasis on northern Arizona.
Fire Ecology • Discover the role of fire in our ponderosa pine ecosystem.
Flowers and Seeds • Learn about flower parts and pollination by dissecting real flowers.
For the Birds • An introduction to bird watching and identifying local bird calls.
Groundwater in Flagstaff • Exploring Flagstaff’s water through a Project WET groundwater model.

Healthy Body, Healthy Earth: Gardening • Learn about bioaccumulation and pesticide alternatives for local gardening.
Images on Stone • Learn the importance of native rock art.
Living within your Climate: From Pueblo Times to Modern Times • Learn about sustainability through archaeology, focusing on northern Arizona.
Midnight Hunters: Owls • Learn the importance of these hunters as well as their unique body adaptations for catching prey.
Ozone: The Good, the Bad, and the Ugly • An introduction to our atmosphere and effects of ozone degradation.
Plant Power! • Learn basic plant identification and the power of local plants.
Rock Talk • An introduction to igneous, sedimentary, and metamorphic rocks, including examples from northern Arizona.
Skulls • By using facial patterns, identify various local animal skulls.
Starry Skies • Understand the rotation and revolution of the earth and the stars we see.
Trash and the Three Rs • Learn how to reduce waste, reuse materials, and recycle in Flagstaff.
Water Quality • An introduction to water quality testing with a focus on the 3 main testing categories and pH.

Middle and High School (Programs run 50 minutes unless otherwise specified.)
Adapt, Survive and Find Your Niche • Understand the roles of natural selection and adaptation in evolution.
Alien Plant Invaders • Learn why land managers are so concerned with “alien” plants invading Coconino County.
BioBug and Alternative Energy • Using Willow Bend’s BioBug, explore current sources of energy, both traditional and “green.”
Climate Change • Learn about the causes and consequences of climate change.
Downtown Flagstaff Geology • Discover the history and geology of downtown Flagstaff with a focus on historic buildings made of stone.
Erupting Earth • Explore different kinds of volcanoes and how they work with an emphasis on northern Arizona.
Everybody Counts • Introduction to population dynamics focusing on doubling and exponential growth.
Fire Ecology • Discover the role of fire in our ponderosa pine ecosystem.
Food and Fossil Fuels • Explore the often unexplored world of fossil fuel use in food production.
For the Birds • An introduction to bird watching and identifying local bird calls.
GMOs and Us • Discover the pros, cons, and effects of gene modification on foods.
Grand Canyon Geology • Explore the layers of the Grand Canyon and how the Canyon was formed.
Groundwater in Flagstaff • Exploring Flagstaff’s water through a Project WET groundwater model.
Healthy Body, Healthy Earth: Gardening • Learn what the health of our soil has to do with the health of our bodies.
Living within your Climate: From Pueblo Times to Modern Times • Learn about sustainability through archaeology, focusing on northern Arizona.
Mapping Migration • Learn about the journey that migratory birds make to their winter home.
People of the Grand Canyon • Explore people’s activities in the Grand Canyon throughout history.
Rainwater Harvesting • Explore water conservation and harvesting in Flagstaff.
Rock Talk • An introduction to igneous, sedimentary, and metamorphic rocks, including examples from northern Arizona.
Secret Life of a Plastic Bag • Learn the lifecycle of a plastic bag and the effects these everyday items have on our planet.
Secret Life of a Shoe • Learn how we can impact the earth through consumer choices.
Starry Skies • Understand the rotation and revolution of the earth and the stars we see.
Trash and the Three Rs • Learn how to reduce waste, reuse materials, and recycle in Flagstaff.
Water Quality • An introduction to the basics of water quality testing.
Other Attractions & Educational Opportunities

**ATTRACTIONS**

- **Museum of Northern Arizona**
  3101 N. Fort Valley Rd.
  Flagstaff, AZ 86001
  928-774-5213
  musnaz.org

- **Sunset Crater Volcano National Monument**
  12 miles north of Flagstaff via Highway 89 (20 minutes)
  928-526-0502
  nps.gov/ suas

- **U.S. Geological Survey**
  2255 N. Gemini Rd., Bldg. 6
  Flagstaff, AZ 86004
  928-556-7037
  astrology.usgs.gov

- **Walnut Canyon National Monument**
  10 miles east of downtown Flagstaff via I-40, Exit 204
  928-526-3367
  nps.gov/wvac

- **Wupatki National Monument**
  33 miles north of Flagstaff via Highway 89 (45 minutes)
  928-679-2365
  nps.gov/wupa

**REGIONAL ATTRACTIONS WITHIN 90 MILES**

- **Bearizona** (30 minutes)
- **Grand Canyon National Park** (1 hour, 15 minutes)
- ** Petrified Forest National Park** (1 hour, 30 minutes)

**JUST FOR FUN ACTIVITIES**

- **Flagstaff Extreme Adventure Course**
  Elevated obstacle course; ziplining
  928-351-7310
  flagstaffextreme.com

- **Flagstaff Aquaplex**
  928-213-2300
  flagstaffaquaplex.org

- **Flagstaff Nordic Center**
  (summer-mountain biking; winter-cross country skiing)
  928-220-0550
  flagstaffnordiccenter.org

- **Arizona Snowbowl**
  (summer-Skyride; winter-skiing)
  928-779-1951
  arizonasnowbowl.com

- **Absolute Bikes**
  Mountain bike rentals
  928-779-9969
  absolutedikes.net

- **Snow Play Winter Recreation Areas**
  928-774-9541
  flagstaffarizona.org

- **Vertical Relief Climbing Gym**
  928-556-9909
  verticalrelief.com

**Student Group Assistance**

Joyce Lingenfelter
Travel Industry Specialist
Flagstaff Convention & Visitors Bureau
211 W. Aspen Ave.
Flagstaff, AZ 86001
928-213-2915
800-217-2367 ext. 2915
jlingenfelter@flagstaffaz.gov
flagstaffarizona.org/travel
Student Group-Friendly Restaurants

**CASUAL DINING**

Big Foot Bar-B-Q
120 N. Leroux St.
928-226-1677
bigfootbbq.com

Black Bart’s Steakhouse
2760 E. Butler Ave.
928-779-3142
blackbartssteakhouse.com

Coco’s Bakery Restaurant
360 W. Forest Meadows St.
928-774-8886
cocosbakery.com

The Food Court at
The Flagstaff Mall
Marketplace Dr. and Hwy. 89
928-526-4827
flagstaffmall.com/dining

Galaxy Diner
931 W. Route 66
928-774-2466

Plaza Bonita
1551 S. Milton Rd.
928-773-0065

Northern Pines Restaurant
2200 E. Butler Ave.
928-266-1933

Sizzler Restaurant
3540 E. Route 66
928-526-3391

**FASTER FOOD AND TAKE-OUT OPTIONS**

Arby’s
Burger King
Chipotle
Five Guys
Flame Broiler
Freddy’s Steakburgers
Kentucky Fried Chicken
McDonald’s
Panda Express
Pizza Hut
Quiznos
Subway
Taco Bell
Wendy’s

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jlingenfelter@flagstaffaz.gov
flagstaffaz.org/travel
Student Group-Friendly Hotel

Days Inn & Suites Flagstaff

- Group rates
- Interior corridors
- Three (3) floors - perfect for rooming boy and girls on separate floors
- Hot breakfast buffet
- Largest heated indoor pool and spa
- Mini suites and two-room suites that can sleep up to six (6)
- One (1) complimentary room per 20
- Free bus parking
- School Group-friendly
- Easy access to all National Parks and Monuments
- Can turn guest room into game room for activities if needed
- One (1) large pizza per five (5) rooms sold

Key to Lodging Amenities

- Breakfast Included
- Restaurant
- Wi-Fi
- In-Room Internet
- Pets Allowed
- Exercise Room
- Outdoor Pool
- Free Airport Transportation
- Hot Tub
- Indoor Pool
- Bus Parking

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800-217-2337 ext. 2915
jlingenfelter@flagstaffaz.gov
flagstaffaz.org/travel
Student Group-Friendly Hotel

Fairfield Inn by Marriott

- 130 rooms
- Conveniently located near I-17 and I-40
- One (1) complimentary room for every 20 booked
- Two floors have exterior entrances and the third floor has interior entrances
- Heated pool open seasonally and hot tub open year-round
- Complimentary deluxe continental breakfast
- Free and ample bus parking
- Free high-speed internet
- Exercise room
- Breakfast area can be used after noon for pizza parties, class meetings and other events
- Teacher or student leaders can take advantage of Planning Rewards as a member of Marriott Rewards, allowing them to accumulate points for every room booked.
- Signed Group Code of Conduct form is required

Key to Lodging Amenities

- Breakfast Included
- Cocktail Lounge
- In-Room Internet
- Pets Allowed
- Exercise Room
- Wi-Fi
- Restaurant
- Free Airport Transportation
- Hot Tub
- Indoor Pool
- Outdoor Pool
- Bus Parking

Fairfield Inn by Marriott
2005 S. Milton Rd.
Flagstaff, AZ 86001
928-773-1300

Flagstaff Convention & Visitors Bureau
jlingenfelter@flagstaffaz.gov
800-217-2367 ext. 2915

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## Holiday Inn Express

- 3-star property featuring all interior corridors and elevator access
- Discounted group pricing
- Extensive hot breakfast buffet
- Indoor/outdoor heated pool and spa
- High-speed internet access in all guest rooms
- On-site fitness room
- 900 square foot banquet space available
- Close to historic downtown, Northern Arizona University and many local restaurants and attractions

### Key to Lodging Amenities

<table>
<thead>
<tr>
<th>Breakfast Included</th>
<th>In-Room Internet</th>
<th>Pets Allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocktail Lounge</td>
<td>Wi-Fi</td>
<td>Restaurant</td>
</tr>
<tr>
<td>Exercise Room</td>
<td>Hot Tub</td>
<td>Bus Parking</td>
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<tr>
<td>Free Airport</td>
<td>Indoor Pool</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>Outdoor Pool</td>
<td></td>
</tr>
</tbody>
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**Student Group-Friendly Hotel**

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**Holiday Inn Express**

2320 W. Lucky Lane
Flagstaff, AZ 86004
Sales Office: 928-714-1000, ext. 143
hiflagstaff.com

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**Student Group Assistance**

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Flagstaff Convention & Visitors Bureau
211 W. Aspen Ave.
Flagstaff, AZ 86001
928-213-2915
800-217-2367 ext. 2915
jingenfelter@flagstaffaz.gov
flagstaffaz.org/travel
Student Group-Friendly Hotel

Little America Hotel

- 247 room full service hotel
- Group pricing available
- Rooms that can accommodate up to 4 people to a room
- Interior corridors to all rooms
- Rates available with breakfast included
- Affordable group meals available at the Western Gold Restaurant, as well as the travel center
- Free motor coach parking
- Heated outdoor pool and hot tub
- Volleyball, horseshoes, croquet, bocce ball, and badminton available
- Two miles of private walking trails on property
- One free soft serve ice cream cone for everyone in tour

Key to Lodging Amenities

- Breakfast Included
- Cocktail Lounge
- Exercise Room
- Free Airport Transportation
- In-Room Internet
- Wi-Fi
- Hot Tub
- Indoor Pool
- Outdoor Pool
- Pets Allowed
- Restaurant
- Bus Parking

Little America Hotel Flagstaff
2515 East Butler Avenue
Flagstaff, Arizona 86004
800-352-4386, ext. 7914
928-779-7914
flagstaff.littleamerica.com

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