

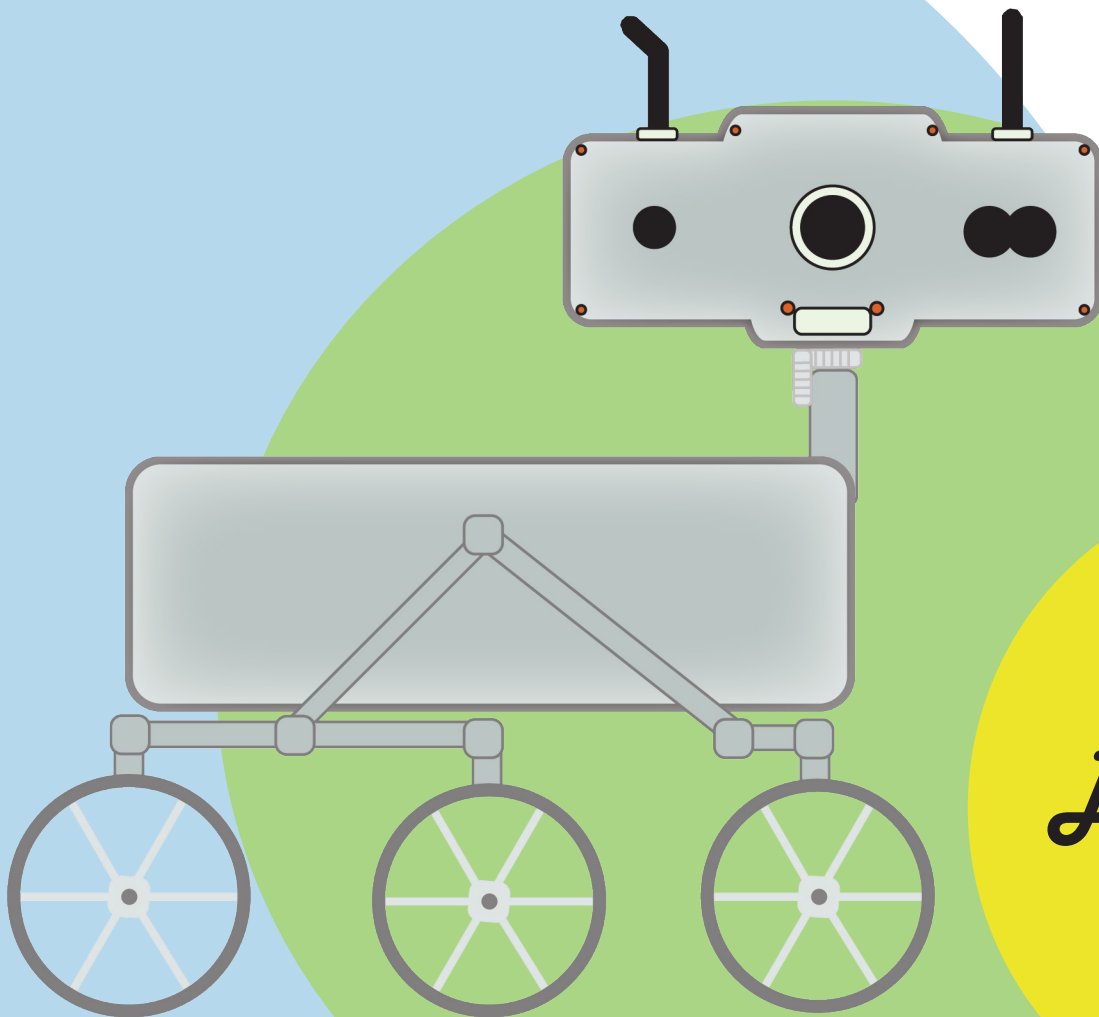


ASHEVILLE MUSEUM OF SCIENCE

## Field Trip & Outreach Guide

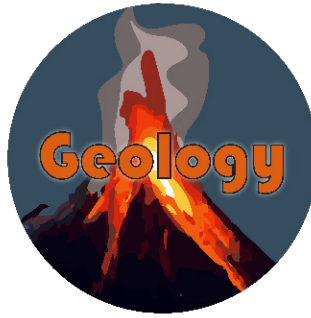
AMOS is proud to offer both field trips to the museum and outreach opportunities!

Below are descriptions of the curriculum options that our education team offers and details about booking!



*Book Today!*

43 Patton Ave | [ashevillescience.org](http://ashevillescience.org) | 828-254-7162



## Mini-Rologists

Suitable for Ages 3-5

Preschool learners will practice measurement, pouring while they mix colors and invent their own kind of chalk. Each participant will make a piece of chalk they get to keep.

## Rocky Roads

Suitable for Ages 6-10 (1.E.2.1, 1.E.1.)

Explore the world of geology with a hands-on investigation of the properties and uses of rocks, minerals, and soil. Classify and categorize rocks based on characteristics and physical properties. Explore porosity and permeability of soil structures through experimentation with particle size.

## Rocks Stars

Suitable for Ages 7-13 (4.P.2.1, 4.P.2.2)

Delve into the world of geology by interacting with rocks and minerals as a geologist does and learn details of their properties. Identify rocks and their place in the rock cycle based on their characteristics.

## Mineral Detectives

Suitable for Ages 7-13 (4.P.2.3.)

Explore the world of minerals and identify specimens using authentic scientific tests and tools, including Moh's hardness scale with custom made hardness kits, acid testing, streak tests, and more.



## Tycho to the Moon

Suitable for Ages 3-5

“Blast off on an amazing ride with Tycho and his young American friends, Ruby and Michael. Learn about night and day, space travel, phases of the Moon, and features of the lunar surface. Take a close-up look at the Sun, see Tycho play in zero gravity, witness Earth from space, and watch meteors shoot across the night sky.”

## Seeing Stars

Suitable for Ages 6-10 (1.E.1.1, 1.E.1.2.)

Interact with the phases of the moon through kinesthetic exploration and explore the night sky with our inflatable planetarium. Construct a scientific model which demonstrates the sun/moon/earth relationships.

## Sun, Stars, Shadows, Oh My!

Suitable for Ages 7-10 (3.E.1.1, 3.E.1.2.)

Live a day in the life of our solar system through interactive play and inquiry-based exploration with our inflatable planetarium. Take ownership over research and practice science communication through group sharing.

## Lunar-tics

Suitable for Ages 7-13(4.E.1.1, 4.E.1.2.)

Interact with the phases of the moon and explore the day and night skies with our inflatable planetarium. Explore the moon phases and earth's rotation with hand-held models and flashlights.



# Weather Makers!

Suitable for Ages 7-10 (2.E.1.1.)

This is an inquiry and invention based approach to measuring and discussing the weather. Through the construction of weather tools and models. Students will gain a deeper understanding of the design and use of technologies to measure scientific phenomena. At the end of this project, you will recognize the tools that scientists use to study the weather and why these tools are constructed the way they are.

## Predicting Pressure

Suitable for Ages 8-12 (5.E.1.2.)

Explore the dynamics of air pressure using a variety of hands-on tools. Students will culminate their air pressure learning experience by building a basic barometer that can be taken home and used for further study!

## Climate Simulation

Suitable for Ages 12-15 (7.P.2.4., 8.P.2.)

The World Climate Simulation is an educational role playing exercise of the global climate change negotiations. During the activity students play negotiators from different countries that are making decisions about greenhouse gas emissions. The results of these decisions are then tested with an interactive climate model. Students gain an understanding of climate science and what can be done to stop human-caused climate change, as well as practice with public speaking, problem solving, and critical thinking.



## Good Vibrations

Suitable for Ages 6-9 (2.p.1.1, 2P.1.2.)

Students will explore sound, how it is created, and what sound waves look like by doing a series of tests with tuning forks. Students will then learn about the mathematical aspect of sound and tone/pitch and use what they have learned to make their own stringed instrument.

## Ramp Racers

Suitable for Ages 7-10 (2.P.1.1., 2.P.1.2.)

Explore material and physical science through the design of a system for launching a small car onto a target. During this open-ended creativity and problem solving lesson students will observe, predict and iterate while learning about motion and forces.

## Circuit Workshop

Suitable for Ages 7-13 (4.P.1, 4.P.3.)

Dive into the world of electricity with hands-on construction of electrical components. Build real parts, mounted on wood blocks, learning the basics of circuitry! The class will work collectively to build multiple sets of take-home circuits that can be used for future classroom study.

## Medieval Motion

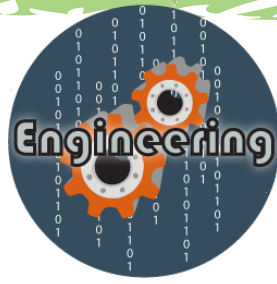
Suitable for Ages 8-14 (5.P.1.1, 5.P.1.2.)

Using creativity and material science, students will build mini projectiles. Students will test launch their designs of different weights, shapes and patterns, measuring their results. This is a skills based design and engineering lesson that reinforces safe testing and careful measurement.

## Calorimetry

Suitable for Ages 12-15 (8.L.5.1)

Engaging with the basics of food science, students will conduct actual calorimetry experiments. Students will collect and calculate with authentic data using wireless temperature probes and graphical software.



## Structure Builders

Suitable for Ages 3-5

Using low cost materials preschool students design and build high resolution structures that are easy to assemble and highly adaptable for art or model homes for humans or animals.

## Exhibit Design Challenge

Suitable for Ages 5+ (NGSS K-2ETS 1-1,2,3, MS ETS 1-1,2,3)

Modeling AMOS' exhibit design protocols, students will analyze existing exhibits and take on the exhibit design challenge back at school! Teachers may choose to book the AMOS STEM Lab for an exhibit showcase after the completion of student exhibits!

**Note:** Other engineering falls under these standards based courses:

## Ramp Racers

Suitable for Ages 7-10 (3.p.1.1, 3.P.1.2.)

(Structural Engineering: See Matter & Energy)

## Circuit Workshop

Suitable for Ages 7-13 (4.P.1, 4.P.3.)

(Electrical Engineering: See Matter & Energy)

## Weather Makers

Suitable for Ages 7-10 (2.E.1.1.)

(Mechanical Engineering: See Weather & Climate)



*\*All QUARRY classes outreach only\**

AMOS has partnered with Grove Stone & Sand, to provide hands-on quarry tours of the Grove Stone & Sand Quarry, in Black Mountain.

## Macro Invertebrate Study

Suitable for Ages 7-13 (1.L.2.2, 2.L.1.1, 4.L.1.1-2)

Students will get the chance to do a streamside investigation where they will collect and identify macroinvertebrates to determine the health of a local stream at the Grove Stone & Sand Quarry.

## Forest Finders

Suitable for Ages 3-9 (K.E.1.1, 1.L.2.1, 3.L.2.1-2, 5.L.2.2)

Students will conduct a tree survey of the Grove Stone & Sand Quarry environmental trail by identifying Western North Carolina native trees and determining species' richness for each survey plot.

## Forest Stewards

Suitable for Ages 10-13 (6.E.2.4, 6.L.2.1, 7.E.1.6, 8.E.1.4, 8.L.3.1-3)

Students will conduct a tree survey of the Grove Stone & Sand Quarry environmental trail by identifying Western North Carolina native trees and determining species' richness for each survey plot.





ASHEVILLE MUSEUM OF SCIENCE

*Presents*

## *The Downtown Experience*

**\*Now able to serve up to 120 students a day\***

Take your students on an educational journey through the heart of Asheville! In this inclusive field trip experience, students have access to a Standards based program at AMOS, in addition to the museum exhibits and a trip with one of our community partners!



Thomas Wolfe immortalized his childhood home in his epic autobiographical novel, *Look Homeward, Angel*. Wolfe's colorful portrayal of his family, his hometown of "Altamont" Asheville, North Carolina, and "Dixieland" the Old Kentucky Home boardinghouse, earned the Victorian period house a place as one of American literature's most famous landmarks.

**Pricing:** \$9.00/student  
**Time Commitment:** 3-5 hours  
**Group Size:** 15-120

**AMOS Program Options:**  
Structure Builders  
Exhibit Design Challenge



The World Climate Simulation is an educational role-playing exercise of the global climate change negotiations. During the activity students play negotiators from different countries and make decisions about greenhouse gas emissions. Students gain an understanding of climate science and what can be done to stop human-caused climate change.

**Pricing:** \$13-16/student  
**Time Commitment:** 3-5 hours  
**Group Size:** 30-120

**AMOS Program Options:**  
Weather Makers  
Predicting Pressure

**NC STATE  
UNIVERSITY**

The Minerals Research Laboratory is a world leader in research, development, and implementation of mineral processing techniques. The MRL is part of the North Carolina State University College of Engineering, under the management of the NC State Industry Expansion Solutions (IES).

**Pricing:** \$7.00/student  
**Time Commitment:** 3-5 hours  
**Group Size:** 15-120

**AMOS Program Options:**  
Mini-Rologists  
Mineral Detectives



## Curriculum Overview

The colored boxes indicate which of our offerings correlate to NC Essential standards in grades Pre-K-8th.

	Pre K & K	1	2	3	4	5	6	7	8
Geology									
Astronomy									
Weather & Climate									
Matter & Energy									
Engineering									
Quarry									

## Chaperone Policy

During field trips, teachers/staff and parents are considered chaperones.

K-5th grade field trips must have a minimum of a 1:6 adult to student ratio, and a maximum of a 1:3 adult to student ratio. 6th-12th grade field trips must have a minimum of 1:10 adult to student ratio.

Adults in excess of the ratio will be subject to full admission cost upon arrival.

Chaperones must be a minimum of 16 years of age, such in the case of camp groups, but we do require at least 1 adult (18 years or older) per 25 students.

Adults with younger children, accompanying them (children not a part of the general group of students), cannot be counted towards chaperone numbers and must pay group-discounted, full admission price. Children over the age of 2, will also be charged.

## Group Sizes and Pricing

	Group Size	Price per Student	Price per Staff/Teacher	Price per Chaperone
General Admission with One Program	15-60	\$6.50	Complimentary	\$5.00
General Admission with Two Programs	15-30	\$11.00	Complimentary	\$5.00
The Downtown Experience	15-120	\$7.00-\$16.00	Complimentary	\$5.00
Outreach Program (travel fee may apply)	20+	\$5.50	Complimentary	n/a
Outreach Two Programs (travel fee may apply)	20+	\$9.00	Complimentary	n/a

To request a field trip please go to [ashevillescience.org/education](http://ashevillescience.org/education)