

## **GEOLOGY AT BIG CREEK**

Thursdays, January 29-April 30 (no class Feb 19, Apr 9: 12 weeks)

9:30am-11:00am

Ages 11-14

Students become geologists and mineral specialists as we study Earth's structure and forces, investigate the physical and chemical properties of rocks, minerals, and gemstones. Over the semester we use the Mohs hardness scale to identify specimens, and explore environmental geology through volcanoes, plate tectonics, and Earth's ever-changing surface. All lab costs are included in registration fee.

Instructor: Ashley Blocker, BSc

Location: Back parking lot at Big Creek Park (1600 Old Alabama Rd, Roswell). There are bathroom facilities at this park entrance.

Course fee: \$275 OR \$25/lab

10% sibling discount

### **LAB SCHEDULE:**

#### **EARTH'S STRUCTURE & PLATE TECTONICS - Thursday, January 29**

Students model Earth's internal layers, explore mantle convection and study how moving plates shape continents.

#### **VOLCANOES & MAGMA DYNAMICS - Thursday, February 5**

Students compare magma types, explore different eruption styles, and investigate how igneous rocks form from cooling magma and lava.

#### **THE ROCK CYCLE - Thursday, February 12**

Students become time-traveling geologists as they push, heat, melt and reshape materials to model the powerful processes that drive the rock cycle and transform rocks over geologic time.

#### **MOHS HARDNESS SCALE - Thursday, February 26**

Students examine mineral properties including, hardness, streak, luster, cleavage, and practice hands-on identification using the Mohs hardness scale.

#### **GEMSTONES & CRYSTAL CHEMISTRY - Thursday, March 5**

Students discover how gemstones form deep inside Earth, compare crystal structures, explore how chemistry affects gem color and shape and crack open geodes.

#### **OPTICAL PHENOMENA - Thursday, March 12**

Students investigate eye-catching light effects found in minerals, such as labradorescence in labradorite, play-of-color in opal, and fluorescence under UV light, and experiment with how light interacts with crystal structure.

**EVALUATING GEMSTONE QUALITY** - Thursday, March 19

Students learn how gemologists assess gemstone quality using clarity, color, cut, carat weight, inclusions, and refractive index, then practice evaluating real and simulated stones

**WEATHERING & CHEMICAL REACTIONS** - Thursday, March 26

Students investigate how acids, oxidation, water, and air chemically alter minerals and rocks, modeling processes like rusting and cave formation

**FOSSILIZATION** - Thursday, April 2

Students learn how fossils form, make their own cast fossils, investigate how wood becomes petrified, and analyze specimens from a fossil collection.

**ROCKS & MINERALS OF GEORGIA** - Thursday, April 16

Students explore Georgia's geological diversity including, quartz, amethyst, gold, marble, kaolin and garnet, and identify local rock and mineral samples.

**MINING & HUMAN IMPACTS** - Thursday, April 23

Students learn how minerals and gemstones are mined, compare types of mining, and conduct an experiment to model environmental impacts and sustainable alternatives.

**ROCK & MINERAL IDENTIFICATION** - Thursday, April 30

Students apply everything they've learned, hardness, streak, luster, cleavage, crystal form and optical effects to identify a curated set of minerals and gemstones.

[www.DiscoverScienceCenter.com](http://www.DiscoverScienceCenter.com)