

4TH

Fourth Grade



A typical Fourth Grade visit (except for Universe In A Day — refer to next page for details about this program) will consist of two 90-minute learning labs, one at 9:30am and a second one at 11:45am Lunch will be scheduled as part of your visit.

Storm Chaser Engineering STEM Lab — 90 Minutes

EQ: How can data about weather conditions help predict tornadoes?

The students are storm-chasing meteorologists on a mission. They will learn about how we collect and analyze data about the conditions that lead to thunderstorms and tornadoes. They will use what they learn along with engineering practices to help solve the real-world problem of how to better predict tornadoes by designing a tornado probe. **Science Standards: 4.E.2B.1, 4.E.2B.2, 4.S.1A.2, 4.S.1B.1**



Light Saves the Day! STEM Lab — 90 Minutes

EQ: How can devices be engineered to use the properties of light energy?

Superhero Rohawk has been captured! Working in collaborative teams as members of The Guardians of Greenville, students will use special skills and gadgets to help the hero escape through the assistance of light energy. They will use their engineering expertise to design/modify devices and find solutions to problems by taking advantage of the properties, behaviors, and interactions of light. By exploring light and energy, the Guardians of Greenville will free the superhero and save the world! **Science Standards: 4.P.4A.1, 4.P.4A.2, 4.P.4A.4, 4.P.4A.5; 4.S.1A.2**

Continued on next page.



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Fourth Grade Continued



Continued from previous page.

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American Revolutionaries Living History Farm & One-Room School — 90 Minutes (Not available in January.)

EQ: In what ways did the Revolution affect life in the American colonies?

By taking part in a reenactment, students will discover the hardships of military life as well as how the battle of Cowpens was part of the decisive turning point in our fight for freedom. Students will discover Revolutionary War spy techniques as they help to convey a secret message! Finally, they will learn about the significance of the Declaration of Independence and write with a quill pen. **Social Studies Standard: 4-3.2, 4-3.3.**

Sounds Dangerous! - Mystery on Mars STEM Lab — 90 Minutes **New!**

EQ: How can the properties of sound, volume and pitch be analyzed to identify and control vibrations?

Students will work as engineers on a mission to establish a new base on Mars. The team detects a dangerous vibration in the rover which could jeopardize the vehicle and crew. Using sound meters and oscilloscopes, student teams will locate the source and properties of the sound, including pitch and volume. Then they will work as a team to decrease the vibration. Will they find the threatening sound in time? Join the mission and find out! **Science Standards: 4.P.4B.2; 4.S.1.A.6, 4.S.1.B.1**



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Universe In A Day

9:30am to 1:30pm

Up to four classes rotate through five astronomy areas. Learning labs are standards-based and filled with inquiry activities for students working in cooperative groups. Using the unique labs and resources students will cover 4th Grade astronomy performance indicators. Lunch will be scheduled as part of your visit.

September - January

Live Lesson in STARLAB Planetarium

(While the Planetarium is being renovated we will offer STARLAB in a rotation with the other 4 labs.)

EQ: How can we describe the locations, movements, and patterns of stars and objects in our solar system?

Travel into STARLAB and explore the Milky Way Galaxy, the Sun and the planets of our solar system. We will also view major stars and seasonal constellations.

Science Standards: 4.E.3A.1; 4.E.3A.2.; 4.E.3B.4.

February - May: in our newly renovated Planetarium

First Your Group Attends:

Live Lesson by the Astronomer

The astronomer will use the unique, full-dome planetarium to illustrate specific and challenging 4th grade space science concepts including:

- Earth: axis, tilt, rotation, day and night, orbital revolution and seasonal pattern
- Moon: location, movement, phases and tidal effect on oceans
- Sun: properties, apparent path in the sky and effects on Earth.

Science Standards: 4.E.3A.1; 4.E.3A.2.; 4.E.3B.1; 4.E.3B.2.

And: “Earth, Moon & Sun” Planetarium Show

EQ: What is the relationship between the earth, moon and sun and other objects in our solar system?

Follow Coyote’s quest for answers about what he sees in the night sky. This exciting show, inspired by American Indian oral traditions, will help students learn concepts about the Earth-Moon-Sun system. Learn the basics of solar energy and why the sun rises and sets. Examine the moon’s orbit, craters, phases and eclipses. You’ll even take a look at past and future space travel to our moon... and beyond!

Science Standards: 4.E.3A.1; 4.E.3A.2.; 4.E.3B.4.

Then Your Group Rotates through Four Labs:

Continued on next page.



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Continued from previous page.

Universe In A Day Labs:

Phases of the Moon Universe Classroom – 30 Minutes

EQ: How do the movements of the Earth, Moon, and Sun affect how the Moon looks?

Using moon box models students will manipulate the position of the moon in its orbit around the Earth. They will use this data to describe the Moon Phase Cycle.

Science Standards: 4.E.3B.1.; S.1.A.2.

Seasons Astronomy Classroom – 30 Minutes

EQ: How does tilt, revolution and angle of sunlight affect seasonal changes?

Students will utilize Sun, Earth and Moon models (Orrery) to explore the relationship between seasonal changes and the tilt, revolution and angle of sunlight on the Earth. **Science Standards: 4.E.3B.4; S.1.A.6.**

Shadows of the Sun STEM Lab – 30 Minutes

EQ: How do shadows from the sun demonstrate Earth's rotation?

Students will use Earth and shadow models to explain why the Sun appears to move across the sky throughout the day. **Science Standards: 4.E.3B.3; S.1.A.6.**

Observatory & Telescope Observatory – 30 Minutes

EQ: How can the use of telescopes support the claim that they aid in exploration?

Students will make a basic telescope to discover how they are designed. An advanced telescope will then be used to understand the significance of these tools in the study of objects in outer space. After using advanced telescopes to observe objects, students will construct reasons to support the claim that telescopes aid in exploration. The center's historic telescope, one of the nation's largest, will be the backdrop for the lesson. **Science Standards: 4.E.3A.3.; S.1.A.6.**



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