

Earth Science Syllabus (2018-2019)
Summit Academy of Greater Louisville
Ms. Keeley T. Finn

Course Goal: The Earth Science Course is designed to equip students with a basic understanding of the different formations and water systems of the earth and the planets, and of how they are formed. Our topics will include Astronomy (study of outer space), Geology (study of rocks, earthquakes, volcanoes and plate tectonics), Meteorology (study of the atmosphere, climate and climate change), and Oceanography (study of the oceans and water systems). The goal of this course is to provide you with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, and the formations of planets, rocks, mountains, volcanoes, waterways, and weather systems. This course will also pose projects related to environmental science problems, and will ask students to evaluate said problems, and to pose solutions.

Text and Resources:

Text: AGS Earth Science, 1997, American Guidance Service, Inc.

Videos: Planet Earth, Life, The Blue Planet Series, NOVA, Cosmos, Bill Nye, The Martian

Online Resources: Google Earth, NOAA, NASA, Environmental News Network, Annenberg Habitable Planet, Google Classroom

Units and Chapters	Topics	Activities and Labs	Video	Duration
Unit 1: Introduction/ Maps Chapter 1&2	Topographic Maps, Latitude/Longitude, GPS Receivers	*Exploration of Maps on the NSGS Website *Reading of Chapter 1 and 2 and Reading Response Questions- Jigsaw *Exploration of Google Earth- Find the Continents and the Oceans *Creation of a Topographic Map	*Brain Pop Earth Video	1 weeks
The Earth & Moon/ Gravity Chapter 3	The Earth The Moon Gravity Obriation	*Why Doesn't the Moon Fall Into the Earth Activity *Moon ABC fact sheet *Read Chapter 3 and Questions- Jigsaw *Lunar Eclipse Lab *Lunar Biosphere Lab *Discuss Tide Pools and how gravity affects tide *Design a Lunar Rover *Test	*Bill Nye Gravity video with formative questions *Brain Pop-Moon	2 weeks

Unit 3 Earth Chemistry Chapter 6		*Atom Model lab *Global Warming- The Physics of the Greenhouse Effect (PBS Learning Media) *Soil Ph Greenhouse Box Lab *Water PH lab	*Brain Pop- Nitrogen Cycle	2 weeks
Unit 4 Chapter 11&12	Oceans & Waterways	*Water Salinity Lab *Tide Pool Experiment *Wave Motion lab- NOAA *Water Pollution Charcoal Lab *Article- The Great Barrier Reef	*Blue Planet-Tidal Seas *Brain Pop- The Ocean Floor *BrainPop- Rivers	2 weeks
Unit 5 Chapter 12	Weathering and Erosion	*Lorax/Truax *Ecosystem Services Lab *Acid Rain Ph experiment	*BrainPop- Erosion *BrainPop- Erosion	1 week
Unit 6 Chapter 9&10	Weather and Climate	*Visit from a meteorologist?- Tom Wills/John Belski? *Tornado in a Bottle Lab *Rain Lab/Cloud Creation *Create a Rainbow- Prism Lab	*The Weather Machine- NOVA *BrainPop- Earth's Atmosphere *Bill Nye- Weather	3 weeks
Unit 7 n/a	Climate Change		*BrainPop- Climate Change *BrainPop-The Greenhouse effect	2 weeks
Unit 7 Chapter 7	Minerals	*Rock Lab- 3 separate labs for igneous, metamorphic, and sedimentary rocks *Field Trip to Falls of the Ohio? *Mineral Dissolution Lab *Visit from a Geologist? Dr. John Hale?	*Brainpop- Types of Rocks	2 weeks

Unit 8	Forces in Earth	*Subduction Lab/Convection Lab *Volcano Lab *Make Volcano Cookies	*Bill Nye the Science Guy (Earthquakes) *NOVA- Hunt for the Supervolcano	2 weeks
Unit 9	A record of the Earth's History	*Carbon Dating Skittles Lab *Sediment layers lab *Fossil Lab *Archaeological Dinosaur Dig	*Crash Course Edpuzzle Big History *Khan Academy Half Life Video	2 weeks
Unit 10	The Solar System	*Solar System Creation Lab *Living on Mars Activities *Expanding Universe-Poster Project	*The Martian	2 weeks
Unit 11	Stars and Galaxies	*Read Article on Space weather (NOAA) *LAB- Effect of the Solar Wind on the Geomagnetic Field *NASA e-clips- The Life Cycle of a Star	*Cosmos with Neil Degrasse Tyson- Episode 1	1 week
Unit 12	Dark Matter and Black Holes	*Model of a Curved Universe Lab *Wormhole Lab	Black Holes- NOVA	1 week

Lab and Activity Descriptions:

Some Labs are TBA, Descriptions will be update on an ongoing basis as the school year progresses

Map Lab- Students will be given a variety of maps to explore, including a topographic map and will evaluate questions regarding how topographic maps might be used by scientists.. Students will then use Google Earth to locate each of the 7 continents, as well as the 4 oceans. They will then go on a scavenger hunt in which they will locate their home, the Nile River, the Mojave desert, Waikiki Beach, The Andes Mountains, The Great Lakes, Victoria Falls, and the Rocky Mountains.

Creation of Topographic Map- Students will create a topographic map using a model kit.

Lunar Eclipse Lab- Students will create a model of a lunar eclipse using a light bulb and a ping pong ball. Students will draw a diagram of a lunar eclipse and evaluate questions regarding the phases of the moon and why they occur.

Lunar Biosphere Lab- Students will envision what a lunar Biosphere may look like and will research what creating a lunar biosphere might look like, and will write a report.

Rock Labs- Students will examine the hardness level and physical characteristics of igneous, sedimentary, and metamorphic rocks, as well as rocks that are common to Kentucky, and will be taught to identify rocks by hardness level and physical appearance.

Design a Lunar/Mars Rover- Students will watch a video about the lunar rover, and research mars and lunar rovers, and will design a modern lunar or mars rover with Kynex.

Lorax/Truax- In a discussion on sustainability, students will watch the video “The Lorax” and read “Truax” which is a response from the logging industry. Students will discuss biases and weaknesses of each position and choose which side they agree with the most.

Ecosystem Services Lab- Students will examine the amount of erosion in container containing only soil; soil, dead leaves and mulch; or soil and live plants. Students will discuss how plants prevent erosion as well as other ecosystem services provided by plants.

Grading System

Grades will be based on:

Engagement: 20%

5% Warm Ups, Exit Slips, and Active Participation

10% Homework

Progression: 30%

15% Labs and Classroom Activities as Assigned

15% Reading and Research

Mastery: 50%

30% Tests and Exams

20% Ongoing Projects

Classroom Discipline will be consistent with Summit Academy handbook rules for student conduct, and the Restorative Practice Initiative. Classroom conduct will be driven by Discipline with Dignity and each student will be expected to demonstrate high school maturity including, but not limited to: Controlled language, proper hygiene, expecting and giving respect to teachers, and equipment, and completion of assigned work to the best of your ability.

Late work policy

Students are responsible for asking for missed work within three days of the assignment to receive credit. All outstanding missing assignments will be given 0 points after three days without communication and no alternative assignment will be given.

Cell Phone Policy

Students must leave their cell phones in their lockers and may not bring the cell phone to class unless instructed to by the teacher to complete classwork

Gamified Classroom

My Classes will participate in Classcraft, a classroom tool that increases student engagement, teamwork, and motivation, which students may keep track of using the Classcraft app on their cell

phones (note: cell phones may not be brought to class, students should keep track of the class craft game on their downtime). Students will also receive a weekly reward based on a points system between all of my classes.

Contact info

- Email: kfinn@summit-academy.org
- All emails will be answered within 24 hours during the week, and within 48 hours on the weekends.