

August 17, 2020

Dear Parents and Students,

Welcome to Environmental Science! This year we will be studying a lot of different topics ranging from environmental chemistry, to eco-systems to weather and climate. We are in store for a great year filled with labs, activities, and lots of learning. Something that will keep you on top of your science this year is my website.

mrpowellscience.com

Also subscribe on youtube.com *Mr. Powell Science*

Please visit the site regularly to stay up to date on what happened in class, what's coming up, and, if you miss a day what you missed.

Additionally, all work will be submitted digitally through **Google Classroom**. The class code for your class is **wxxt06f**

For science class, in addition to a pencil, you will need a **composition book, glue stick, colored pencils, highlighter** and **scissors**. We will use each of these items almost daily. **Due to COVID** students **may not** share materials. Please make sure you have all your materials everyday.

I'm looking forward to a great year of science learning with you!

-Mr. Powell

What is science?

Before

After

Why is science important?

Before

After

Environmental Science 2020-2021 Syllabus

*Google classroom/stemscopes/videos/ect

*Supplemental worksheets

*No more than 4 graded assignments and 1 assessment per week

*There will be one live session lecture per week minimum which will be recorded and posted for all students to access

*There will be a unit test at the end of each unit and a comprehensive final at the end of the 9 weeks

*Office hours will be determined by individual teachers and or student requests

Weekly Instruction Outline (Subject to change)

Monday	Tuesday	Wednesday	Thursday	Friday
Content Learning Time	Simulation Lab Day	Work/Study/Read	Work/Study Day	Assessment Day

Environmental Science A

Unit 1: Chemistry -2 weeks (includes 1st day SOP's and CER instruction)a

- ★ *Where Do Atoms Come From?*
 - Big Bang (H & He) and Stars (He up to Fe), Supernovas (Elements above Fe)
- ★ Atomic Structure
 - nucleus, subatomic particles, valence electrons, Bohr model & Lewis Dot, Isotopes
- ★ Periodic Table
 - counting subatomic particles, position of metals/non-metals/metalloids, predict bonding, periods, energy levels, predicting products
- ★ Naming and Writing Formulas
 - counting atoms, subscript vs coefficient, law of Conservation of Mass
 - Naming compounds and molecules, prefixes and when to use them
- ★ Balancing Equations
- ★ Bonding
 - Types of Bonds and how they form, Diagrams
- ★ Assessment

Unit 2: Ecosystems/Populations and Interactions

The following are the Guiding Questions to be answered in this unit.

- ★ Ecosystems ~3 Weeks
 - **How do organisms interact with their physical surroundings?**
 - What are our local ecosystems and their services?
 - What are components of a healthy ecosystem?
 - What is unique about the distribution of ecosystems in Colorado?
 - What factors contribute to the high diversity of ecosystems in Colorado?
 - How does matter cycle through ecosystems?
 - How does energy flow through ecosystems?

- What evidence do we have for human impact on ecosystems?
- What is my role in sustaining the diversity of Colorado ecosystems?
- ★ Populations & Interactions **~3 Weeks**
 - **How do organisms interact with each other?**
 - What is biodiversity and why is it important?
 - How is biodiversity affected by human activity?
 - How does population growth affect biodiversity?
 - How do interactions of organisms affect biodiversity?
 - What factors determine carrying capacity?
 - What are some solutions for minimizing the loss of biodiversity?
 - What data can be used to evaluate these solutions?
 - How do humans benefit from biodiversity?
 - How does the loss of biodiversity impact humans?

End of 1st Semester

Environmental Science B (Unit length to be determined)

Unit 3: Earth History/Natural Resources

The following are the Guiding Questions to be answered in this unit.

- ★ Earth History
 - **How does the knowledge of the Earth's past help us predict future events?**
 - What are ways that we find out about Earth's past events?
 - Why are Earth's past events important?
 - How have past events affected the evolution of life on Earth?
 - In what ways do the Earth's systems model the laws of conservation of matter and energy?
 - What evidence do we have?
- ★ Natural Resources
 - **How do humans use natural resources?**
 - What are the sources of natural resources such as water, soil, minerals, and energy resources? How are the resources formed?
 - What are the impacts on resources by natural events and human activity?
 - How does the availability of natural resources affect human activity?
 - What are the effects of overuse of natural resources to a society?
 - How can societies use resources more sustainably?
 - How do oversight agencies monitor the extraction and use of natural resources?

Unit 4: Weather and Climate

The following are the Guiding Questions to be answered in this unit.

- ★ Weather
 - Emphasis is on how patterns vary by latitude, altitude, and geographic land distribution.
 - Emphasis of atmospheric circulation is on the sunlight-driven latitudinal banding, the Coriolis effect, and resulting prevailing winds; emphasis of ocean circulation is on the transfer of heat by the global ocean convection cycle, which is constrained by the Coriolis effect and the outlines of continents.
 - Examples of models can be diagrams, maps and globes, or digital representations.

★ Climate

- **How is the climate changing?**
- What natural and anthropogenic factors affect climate change?
- What is the relationship between climate and energy transfer?
- What is the role of oceans in climate and climate change?
- How does climate change impact other Earth's systems?
- Are the impacts on Earth's systems reversible or irreversible?
- What evidence do we have that the climate is changing?
- How does climate change impact global economics?
- How does climate change impact you?

What is Environmental Science?

In the boxes below list at least one item for each topic, you may use phones for research if needed

Environmental Issues Facing the World Today	Species of Animals that Should be Saved
College Majors that Relate to Ecology	Places to Visit to Enjoy the Environment
Movies The Have an Environmental Theme or Message	Ways that Individuals Can Help the Environment
Laws that Protect the Environment	Products that Have an Environmental Message or Application

