Georgia Grade 6-8 • Workshop

Registration 8:00 to 8:30 AM
Sign in, Grab Your Goodies, Stake Out Your Territory & Nab a Cup of Coffee and a Danish on Us.

Introduction 8:30 AM

This workshop will present ideas from 6th, 7th and 8th grade standards for Georgia science. The delineation is easy to determine, all you do is look at the first number of the standard and that will tell you which grade it was taken from. For example, the first lab below is **8P1b.**. This is an eighth grade physical science standard.

Chemistry/Heredity

8P1. Students will examine the scientific view of the nature of matter.

b. Describe the difference between pure substances (elements and compounds) and mixtures.

c. Describe the movement of particles in solids, liquids, gases, and plasmas states.

d. Distinguish between physical and chemical properties of matter as physical (i.e., density, melting point, boiling point) or chemical (i.e., reactivity, combustibility).

e. Distinguish between changes in matter as physical (i.e., physical change) or chemical (development of a gas, formation of precipitate, and change in color).

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S7L3. Students will recognize how biological traits are passed on to successive generations.
b. Compare and contrast that organisms reproduce asexually and sexually (bacteria, protists, fungi, plants & animals).

c. Recognize that selective breeding can produce plants or animals with desired traits.

S7L4. Students will examine the dependence of organisms on one another and their environments.
a. Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.
b. Explain in a food web that sunlight is the source of energy and that this energy moves from organism to organism.

S7L5. Students will examine the evolution of living organisms through inherited characteristics that promote survival of organisms and the survival of successive generations of their offspring. c. Trace evidence that the fossil record found in sedimentary rock provides evidence for the long history of changing life forms.

Morning Break 10:00-10:20 AM
Geology 10:20-11:45 AM

S6E5. Students will investigate the scientific view of how the earth's surface is formed.
b. Investigate the contribution of minerals to rock composition.

c. Classify rocks by their process of formation.

d. Describe processes that change rocks and the surface of the earth.

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e. Recognize that lithospheric plates constantly move and cause major geological events on the earth's surface.

No Host Lunch 11:45-1:00 PM
Drawing for Free Stuff Immediately after Lunch. See you then!
Forces/Light 1:00-2:15 PM

S8P2. Students will be familiar with the forms and transformations of energy.

a. Explain energy transformation in terms of the Law of Conservation of Energy.

b. Explain the relationship between potential and kinetic energy.

d. Describe how heat can be transferred through matter by the collisions of atoms (conduction) or through space (radiation). In a liquid or gas, currents will facilitate the transfer of heat (convection).

S8P3. Students will investigate relationship between force, mass, and the motion of objects.

b. Demonstrate the effect of balanced and unbalanced forces on an object in terms of gravity, inertia, and friction.

S8P4. Students will explore the wave nature of sound and electromagnetic radiation.

b. Describe how the behavior of light waves is manipulated causing reflection, refraction diffraction, and absorption.

c. Explain how the human eye sees objects and colors in terms of wavelengths.

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Afternoon Break 2:15-2:20 PM
Life Science/Astronomy/Energy 2:20-3:15 PM

S7L1. Students will investigate the diversity of living organisms and how they can be compared scientifically. a. Demonstrate the process for the development of a dichotomous key.

Lab: Potato Chip Taxonomy 146

b. Classify organisms based on physical characteristics using a dichotomous key of the six kingdom system (archaebacteria, eubacteria, protists, fungi, plants, and animals).

Lab: Owl Pellet Boneyard 148

S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems.

c. Explain that cells are organized into tissues, tissues into organs, organs into systems, and systems into organisms.

d. Explain that tissues, organs, and organ systems serve the needs cells have for oxygen, food, and waste removal.

Lab: Personal Nerve Tester (tissues) 151
Project: TP Backbone (organ/system) 154

S7L3. Students will recognize how biological traits are passed on to successive generations. a. Explain the role of genes and chromosomes in the process of inheriting a specific trait.

Demo: PTC Taste Test 157
Handout: Frankenstein's Phenotype Factory 159

S6E1. Students will explore current scientific views of the universe and how those views evolved.

c. Compare and contrast the planets in terms of Size relative to the earth Surface and atmospheric features Relative distance from the sun Ability to support life

Lab: Gas Giant #3 (Uranus) 168
Lab: Internal Thermal Furnace (Neptune) 170

S6E2. Students will understand the effects of the relative positions of the earth, moon and sun.

b. Explain the alignment of the earth, moon, and sun during solar and lunar eclipses.

Demo: Lunar Eclipse 173

S8P2. Students will be familiar with the forms and transformations of energy.

c. Compare and contrast the different forms of energy (heat, light, electricity, mechanical motion, sound) and their characteristics.

Lab: The Adaptable Electron 174

S8P5. Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature.

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b. Demonstrate the advantages and disadvantages of series and parallel circuits and how they transfer energy.

Demo: The Domino Circuit 179
Lab: Parallel Pathways 181

f. Diagram the parts of the wave and explain how the parts are affected by changes in amplitude and pitch.

Lab: Straw Flutes and S"Trombones 183

End of the Workshop 3:15 PM
Thanks for Coming! Have Fun with the Kids

Drive Safely.