



Mad Science Workshops & 5th Grade Science

Weeks 1-4 August: Scientific Thinking (4 weeks)

Sunshine State Standard - The Nature of Science (Scientific Method) – H

- [All Mad Science Programs - Scientific Method](#)

Weeks 5-14 October – December: The Earth (10 weeks)

Sunshine State Standard – Processes that shape the Earth – D

Sunshine State Standard – Earth and Space – E

- [Mad Science Workshop - Mineral Mania](#)
- [Mad Science Workshop - Space](#)
- [Mad Science Workshop - The Dirt on Garbage \(recycling\)](#)

These workshops address most Essential to know and Important to know benchmarks

Benchmark Concepts:

- Know the stages of the rock cycle
- Know that eroded materials are transported and deposited over time in new areas to form new features
- Know that geological features result from the movement of the crust of the earth
- Know that the Earth's surface is shaped by both slow and rapid geological processes.
- Know the orbit of the earth and its elliptical shape, and its effect on our seasons
- Know the effect of the tilt of the earth on polar climates

Weeks 15-18 January: Force & Motion (4 weeks)

Sunshine State Standard – Force and Motion – C

- [Mad Science Workshop - Moving Motion](#)
- [Mad Science Workshop - Energy Burst](#)
- [Mad Science Workshop - Sonic Sound](#)

These workshops address all Essential to know and Important to know benchmarks

Benchmark Concepts:

- Know that objects do not change their motion unless acted upon by an outside force
- Know how friction affects an object in motion
- Know how inertia, gravity, friction, mass, and force affect motion.
- Understand Newton's first Law of Motion (Law of Inertia)
- Know how to use tools to measure the motion of an object
- Understand the measurement of velocity (distance/time)
- Know that waves travel at different speeds through different materials
- Know that the density of a material affects the speed that waves can travel through it
- Understand the relationship between force and distance (simple machines)
- Understand the relationship between the strength of a force and its effect on an object (distance and mass)

Weeks 19-22 September: Energy (4 weeks)

Sunshine State Standard - Energy – B

- [Mad Science Workshop - Electricity](#)
- [Mad Science Workshop - Energy Burst](#)
- [Mad Science Workshop - Harnessing Heat](#)

These workshops address all Essential to know and Important to know benchmarks

Benchmark Concepts:

- Know how to trace flow of energy in an electrical system producing light sound, heat and magnetic fields.
- Know that energy can be described as stored (potential) or energy of motion (kinetic)



- Know that some materials conduct heat better than others
- Understand the 3 forms of heat transfer: conduction, convection, and radiation

Weeks 23-32 February – April: Living Systems (10 weeks)

Sunshine State Standard – Processes of Life – F

Sunshine State Standard - How living things Interact with Their Environment – G

Sunshine State Standard - Energy – B

- [Mad Science Workshop - Ecosystems](#)
- [Mad Science Workshop - Cells](#)
- [Mad Science Workshop - All About Animals](#)
- [Mad Science Workshop - Photosynthesis](#)
- [Mad Science workshop - Body Basics](#)

These workshops address most Essential to know and Important to know benchmarks

Benchmark Concepts:

- Know that changes in the environment affect organisms
- Know that plants use carbon dioxide, water, and sunlight for food, growth, maintenance, and reproduction
- Know that adaptation to an environment increases survival of a species
- Know how to trace the flow of energy in a food chain (energy webs)
- Know that natural resources are not limited
- Know how important it is to find renewable energy resources
- Know the common and distinguishing characteristics of vertebrate groups of animals
- Know the similarities and differences among plants
- Know common characteristics plants and animals have in structures for reproduction, respiration, and growth
- Understand the various roles of single celled organisms in the environment
- Know how plants and animals interact with each other in an ecosystem
- Know the parts of plants and animal cells
- Using magnifying tools identify the different kinds of structures in a cell and how to identify similar cells
- Know that many characteristics of an organism are inherited from genetic ancestors
- Know that some characteristics result from the organisms interactions with the environment (adaptations)

Weeks 33-36 April – May: Nature of Matter (4 weeks)

Sunshine State Standard – The Nature of Matter – A

- [Mad Science Workshop – Turn up the Volume](#)
- [Mad Science Workshop – Matter of Fact](#)

These workshops address all Essential to know and Important to know benchmarks

Benchmark Concepts:

- Know the tools used to determine density, volume and mass, and how to use them.
- Know how to identify similarities and difference in matter using properties that are physically combined
- Know that matter is conserved during heating and cooling
- Know the difference between physical and chemical changes in matter
- Know which tool to use when viewing different items (i.e. hand lenses vs. microscope)