Mad Science Programming correlated to

STAAR™
State of Texas Assessments of Academic Readiness

Grade 5 Science Assessment
Eligible Texas Essential Knowledge and Skills

July 2011

Reporting Category 1: Matter and Energy
The student will demonstrate an understanding of the properties of matter and energy and their interactions.

Grade 5

(5.5) **Matter and energy.** The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to

(A) classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric energy; ***Readiness Standard***

Mad Science Correlations
ASP: Lab Works, Junior Reactors, pH Phactor, Slime Time, Chem in a Flash, Glow Show, Super Sticky Stuff, Dry Ice Capades, Atmosphere and Beyond, Living in Space, Space Technology, Harnessing Heat, Magnetic Magic, Watts-Up, Che-mystery, Current Events, Wacky Water, Detective Science, Kitchen Chemistry, Mix It Up
WS: Black and Blue Oceans, Matter of Fact, Mineral Mania, Mischievous Magnets, Playing with Polymers

(B) identify the boiling and freezing/melting points of water on the Celsius scale; ***Supporting Standard***

Mad Science Correlations
ASP: Lab Works, Dry Ice Capades, Harnessing Heat, Wacky Water, Walloping Weather

(C) demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand; and ***Supporting Standard***

Mad Science Correlations
ASP: Slime Time, Glow Show, Space Technology, Wacky Water, Mix It Up
WS: Black and Blue Oceans

Reporting Category 1: Matter and Energy

(D) identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water. ***Supporting Standard***

Mad Science Correlations
ASP: Lab Works, Junior Reactors, pH Phactor, Slime Time, Chem in a Flash, Glow Show, Dry Ice Capades, Lights Color Action, Mission: Nutrition, Tantalizing Taste, Che-mystery, Wacky Water, Kitchen Chemistry, Detective Science, Movie Effects, Mix It Up, Super Power Sources
WS: Cells, Matter of Fact, Photosynthesis, Playing with Polymers

Grade 3

(3.5) **Matter and energy.** The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to

(C) predict, observe, and record changes in the state of matter caused by heating or cooling. ***Supporting Standard***

Mad Science Correlations
ASP: Dry Ice Capades, Space Phenomena, Harnessing Heat, Wacky Water, Mission: Nutrition, Current Events, Walloping Weather
WS: Matter of Fact, Playing with Polymers

Reporting Category 2: Force, Motion, and Energy
The student will demonstrate an understanding of force, motion, and energy and their relationships.

Grade 5

(5.6) **Force, motion, and energy.** The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to

(A) explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy; ***Readiness Standard***

Mad Science Correlations
ASP: Glow Show, Harnessing Heat, Lights Color Action, Magnetic Magic, Sonic Sounds, Watts Up, Current Events, Mad Machines, Science of Toys, Energy Burst, Radical Robots, Super Power Sources, Get Connected
WS: Electricity, Good Vibrations, Invention-ation, Mischievous Magnets

(B) demonstrate that the flow of Electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound; ***Readiness Standard***

Mad Science Correlations
ASP: Magnetic Magic, Current Events, Science of Toys, Radical Robots, Get Connected, Super Power Sources, Watts Up
WS: Electricity, Good Vibrations, Invention-ation, Mischievous Magnets

(C) demonstrate that light travels in a straight line until it strikes an object or travels through one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces and refracted such as the appearance of an object when observed through water; and ***Readiness Standard***

Mad Science Correlations
ASP: Lights Color Action, Optical Illusions, Atmosphere and Beyond, Planets and Moons, Space Phenomena, Science of Magic

(D) design an experiment that tests the effect of force on an object. ***Supporting Standard***

Mad Science Correlations
ASP: Rocket Science, Space Travel, Fun-damental Forces, Fantastic Fliers, Under Pressure, Mad Machines, Science of Toys, Energy Burst, Moving Motion, Great Gravity
WS: Scientific Method

Reporting Category 2: Force, Motion, and Energy

Grade 3

(3.6) **Force, motion, and energy.** The student knows that forces cause change and that energy exists in many forms. The student is expected to

(B) demonstrate and observe how position and motion can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons. ***Supporting Standard***

Mad Science Correlations
ASP: Space Technology, Fun-damental Forces, Fantastic Fliers, Under Pressure, Mad Machines, Science of Toys, Energy Burst, Moving Motion, Great Gravity
WS: Scientific Method

Reporting Category 3: Earth and Space
The student will demonstrate an understanding of components, cycles, patterns, and natural events of Earth and space systems.

Grade 5

(5.7) **Earth and space.** The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to

(A) explore the processes that led to the formation of sedimentary rocks and fossil fuels; ***Readiness Standard***

Mad Science Correlations
ASP: Earthworks
WS: Mineral Mania

(B) recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice; ***Readiness Standard***

Mad Science Correlations
ASP: Earthworks

(C) identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels; and ***Readiness Standard***

Mad Science Correlations
ASP: Super Power Sources

(D) identify fossils as evidence of past living organisms and the nature of the environments at the time using models. ***Supporting Standard***

Mad Science Correlations
none

(5.8) **Earth and space.** The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to

(A) differentiate between weather and climate; ***Supporting Standard***

Mad Science Correlations
ASP: Planets and Moons, Sun and Stars, Space Phenomena, Walloping Weather

Reporting Category 3: Earth and Space

(B) explain how the Sun and the ocean interact in the water cycle; ***Supporting Standard***

Mad Science Correlations
ASP: Wacky Waves, Walloping Weather

(C) demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky; and ***Readiness Standard***

Mad Science Correlations
ASP: Planets and Moons, Sun and Stars, Space Phenomena

(D) identify and compare the physical characteristics of the Sun, Earth, and Moon. ***Supporting Standard***

Mad Science Correlations
ASP: Planets and Moons, Sun and Stars, Space Phenomena

Grade 4

(4.7) **Earth and space.** The student knows that Earth consists of useful resources and its surface is constantly changing. The student is expected to

(A) examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants; and ***Supporting Standard***

Mad Science Correlations
ASP: Earthworks

(C) identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation. ***Supporting Standard***

Mad Science Correlations
ASP: Super Power Sources
WS: Ecosystem Explorations, The Dirt on Garbage, Playing with Polymers

Reporting Category 3: Earth and Space

(4.8) **Earth and space.** The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to

(A) measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key; ***Supporting Standard***

Mad Science Correlations
ASP: Walloping Weather

(B) describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process; and ***Supporting Standard***

Mad Science Correlations
ASP: Wacky Water, Walloping Weather

(C) collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time. ***Supporting Standard***

Mad Science Correlations
ASP: Planets and Moons, Space Phenomena, Walloping Weather

Grade 3

(3.7) **Earth and space.** The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to

(B) investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides. ***Supporting Standard***

Mad Science Correlations
ASP: Earthworks

(3.8) **Earth and space.** The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to

(D) identify the planets in Earth's solar system and their position in relation to the Sun. ***Supporting Standard***

Mad Science Correlations
ASP: Planets and Moons

Reporting Category 4: Organisms and Environments
The student will demonstrate an understanding of the structures and functions of living organisms and their interdependence on each other and on their environment.

Grade 5

(5.9) **Organisms and environments.** The student knows that there are relationships, systems, and cycles within environments. The student is expected to

(A) observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements; ***Readiness Standard***

Mad Science Correlations
ASP: All About Animals, Life in the Sea
WS: Black and Blue Oceans, Ecosystem Explorations

(B) describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers; ***Readiness Standard***

Mad Science Correlations
ASP: All About Animals, Life in the Sea
WS: Ecosystem Explorations, Photosynthesis, The Dirt on Garbage

(C) predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways; and ***Supporting Standard***

Mad Science Correlations
ASP: All About Animals, Life in the Sea
WS: Black and Blue Oceans, Ecosystem Explorations

(D) identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals. ***Supporting Standard***

Mad Science Correlations
WS: Photosynthesis

Reporting Category 4: Organisms and Environments

(5.10) **Organisms and environments.** The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to

(A) compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals; ***Readiness Standard***

Mad Science Correlations
ASP: All About Animals, Bugs, Life in the Sea
WS: Ecosystem Explorations

(B) differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle; and ***Readiness Standard***

Mad Science Correlations
ASP: All About Animals, Bugs, Life in the Sea
WS: Ecosystem Explorations

(C) describe the differences between complete and incomplete metamorphosis of insects. ***Supporting Standard***

Mad Science Correlations
ASP: Bugs

Grade 3

(3.9) **Organisms and environments.** The student knows that organisms have characteristics that help them survive and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to

(A) observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem. ***Supporting Standard***

Mad Science Correlations
ASP: All About Animals, Life in the Sea
WS: Ecosystem Explorations

Reporting Category 4: Organisms and Environments

(3.10) **Organisms and environments.** The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to

(C) investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady Bugs. ***Supporting Standard***

Mad Science Correlations
ASP: All About Animals, Bugs, Life in the Sea

Scientific Investigation and Reasoning Skills
These skills will not be listed under a separate reporting category. Instead, they will be incorporated into at least 40% of the test questions in reporting categories 1–4 and will be identified along with content standards.

Grade 5

(5.1) **Scientific investigation and reasoning.** The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to

(A) demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations; and

Mad Science Correlations
All Mad Science programs meet these requirements

(B) make informed choices in the conservation, disposal, and recycling of materials.

Mad Science Correlations
ASP: Life in the Sea, Super Power Sources
WS: The Dirt on Garbage, Playing with Polymers

(5.2) **Scientific investigation and reasoning.** The student uses Scientific Methods during laboratory and outdoor investigations. The student is expected to

(A) describe, plan, and implement simple experimental investigations testing one variable;

Mad Science Correlations
All Mad Science programs meet these requirements

(B) ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology;

Mad Science Correlations
All Mad Science programs meet these requirements

(C) collect information by detailed observations and accurate measuring;

Mad Science Correlations
All Mad Science programs meet these requirements

Scientific Investigation and Reasoning Skills

(D) analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;

Mad Science Correlations
All Mad Science programs meet these requirements

(E) demonstrate that repeated investigations may increase the reliability of results;

Mad Science Correlations
All Mad Science programs meet these requirements

(F) communicate valid conclusions in [both] written [and verbal] form[s]; and

Mad Science Correlations
ASP: Lab Works, Junior Reactors, pH Phactor, Slime Time, Chem in a Flash, Glow Show, Super Sticky Stuff, Planets and Moons, Atmosphere and Beyond, Space Technology, Space Travel, Space Phenomena, Che-mystery, Detective Science, Walloping Weather, Mix It Up, Super Power Sources
WS: Black and Blue Oceans, Invention-ation, Scientific Method

(G) construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.

Mad Science Correlations
ASP: Lab Works, Junior Reactors, pH Phactor, Slime Time, Chem in a Flash, Glow Show, Super Sticky Stuff, Planets and Moons, Atmosphere and Beyond, Space Technology, Space Travel, Space Phenomena, Che-mystery, Detective Science, Walloping Weather, All About Animals, Life in the Sea, Mix It Up, Super Power Sources
WS: Black and Blue Oceans, Invention-ation, Scientific Method

Scientific Investigation and Reasoning Skills

(5.3) **Scientific investigation and reasoning.** The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to

(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;

Mad Science Correlations
All Mad Science programs meet these requirements

(B) evaluate the accuracy of the information related to promotional materials for products and services such as nutritional labels;

Mad Science Correlations
ASP: Mission: Nutrition

(C) draw or develop a model that represents how something works or looks that cannot be seen such as how a soda dispensing machine works; and

Mad Science Correlations
ASP: Radical Robots
WS: Cells, Photosynthesis, Invention-ation

(D) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

Mad Science Correlations
All Mad Science programs meet these requirements

(5.4) **Scientific investigation and reasoning**. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to

(A) collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observations of habitats or organisms such as terrariums and aquariums; and

Mad Science Correlations
All Mad Science programs meet these requirements

(B) use safety equipment, including safety goggles and gloves.

Mad Science Correlations
All Mad Science programs meet these requirements