



# ST[EMpower]



SCIENCE, TECHNOLOGY,  
ENGINEERING, AND MATH  
COLORADO STATE UNIVERSITY  
EXTENSION

## Mad Scientist Experiments For Taking Over the World (MUW—Ha-Ha-Ha-Ha)



### Aligning Standards

I am working most closely with the newly adopted science standards, but once I am familiar with them, I will start branching out, and aligning the additional standards that meet these lessons.

Teachers, you do not have enough time to present all the standards your students are required to meet. The only way to effectively present all that information, is by teaching holistically—incorporating math, reading writing communicating, fine art, social studies, etc. in each lesson. Tough, but it is possible! **We are here to help.**

## Contact Information

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Youth Development:  
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An elementary teachers has about 110 standards to meet each school year. It requires between 12 and 15 times for cognizant acquisition of new information. So, in order to present all the standards for your students, you must present a new standard every 43 minutes. But, that does not account for recess, lunch, socialization, turning in papers, and testing. Accounting for those needs, it means you have less than 21 minutes to present a new standard. The only way to meet this demand is to teach holistically.

*Colorado State University Extension 4-H programs are available to all without discrimination.*

# Supplemental Information

Grades	Kindergarten	Second	Third
SC20 - Activity	GR.K-S.2-GLE.1	GR.2-S.1-GLE.1	GR.3-S.1-GLE.1
Science Discipline	S.2 Life Science	S.1 Physical Science	S.1 Physical Science
Grade Level Expectations	To live and grow, animals obtain food they need from plants or other animals, and plants need water and light.	Matter exists as different substances that have observable different properties.	Patterns of motion can be used to predict future motion.
Gross Gardens			
Acids & Bases & Colors - BOOM!			
Witches Fingers			
Mad Scientist Launcher			
Mad Scientist Doodle-Bot			
Mad Scientist Lair - Meets Some Math Standards			

# Supplemental Information

Grades	Third	Fourth
SC20 - Activity	GR.3-S.1-GLE.2	GR.4-S.1-GLE.1
Science Discipline	S.1 Physical Science	S.1 Physical Science
Grade Level Expectations	Objects in contact exert forces on each other; electric and magnetic forces between a pair of objects do not require contact.	The faster an object moves the more energy it has.
Gross Gardens	Organisms have unique and diverse life cycles.	Different organisms vary in how they look and function because they have different inherited information; the environment also affects the traits that an organism develops.
Acids & Bases & Colors - BOOM!		
Witches Fingers		
Mad Scientist Launcher		
Mad Scientist Doodle-Bot		
Mad Scientist Lair - Meets Some Math Standards		

# Supplemental Information

Fourth		Fifth	
SC20 - Activity	GR.4-S.1-GLE.3	GR.5-S.1-GLE.1	GR.5-S.1-GLE.2
Science Discipline	S.1 Physical Science	S.1 Physical Science	S.1 Physical Science
Grade Level Expectations	When objects collide contact forces transfer so as to change objects' motion.	Matter exists as particles that are too small to be seen; measurements of a variety of observable properties can be used to identify particular materials.	Chemical Reactions that occur when substances are mixed can be identified by the emergence of substances with different properties; the total mass remains the same.
Gross Gardens			
Acids & Bases & Colors - BOOM!			
Witches Fingers			
Mad Scientist Launcher			
Mad Scientist Doodle-Bot			
Mad Scientist Lair - Meets Some Math Standards			

# Supplemental Information

Grades	Fifth	Middle School
SC20 - Activity	GR.5-S.1-GLE.3	GR.MS-S.1-GLE.1
Science Discipline	S.1 Physical Science	S.1 Physical Science
Grade Level Expectations	The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.	The fact that matter is composed of atoms and molecules can be used to explain the properties of substances, diversity of materials, states of matter and phases changes.
Gross Gardens		
Acids & Bases & Colors - BOOM!		
Witches Fingers		
Mad Scientist Launcher		
Mad Scientist Doodle-Bot		
Mad Scientist Lair - Meets Some Math Standards		

# Supplemental Information

Middle School				
Grades				
SC20 - Activity	GR.MS-S.1-GLE.2	GR.MS-S.1-GLE.3	GR.MS-S.1-GLE.5	GR.MS-S.1-GLE.7
Science Discipline	S.1 Physical Science	S.1 Physical Science	S.1 Physical Science	S.1 Physical Science
Grade Level Expectations	Reacting substances rearrange to form different molecules, but the number of atoms is conserved. Some reactions release energy and others absorb energy.	Motion is described relative to a reference frame that must be shared with others and is determined by the sum of the forces acting on it. The greater the mass of the object, the greater the force needed to achieve the same change in motion.	Kinetic energy can be distinguished from the various forms of potential energy.	When two objects interact, each one exerts a force on the other that can cause energy to be transferred to and from the object.
Gross Gardens				
Acids & Bases & Colors - BOOM!				
Witches Fingers				
Mad Scientist Launcher				
Mad Scientist Doodle-Bot				
Mad Scientist Lair - Meets Some Math Standards				

# Supplemental Information

Middle School				
Grades				
SC20 - Activity	GR.MS-S.1-GLE.9	GR.MS-S.2-GLE.1	GR.MS-S.2-GLE.2	GR.MS-S.2-GLE.3
Science Discipline	S.1 Physical Science	S.2 Life Science	S.2 Life Science	S.2 Life Science
Grade Level Expectations	A wave model of light is useful to explain how light interacts with objects through a variety of properties.	All living things are made up of cells, which is the smallest unit that can be said to be alive.	Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring.	Sustaining life requires substantial energy and matter inputs.
Gross Gardens				
Acids & Bases & Colors - BOOM!				
Witches Fingers				
Mad Scientist Launcher				
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Mad Scientist Lair - Meets Some Math Standards				

# Supplemental Information

Grades	Middle School	High School
SC20 - Activity	GR.MS-S.2-GLE.5	GR.HS-S.1-GLE.1
Science Discipline	S.2 Life Science	S.1 Physical Science
Grade Level Expectations	Organisms and populations of organisms are dependent on their environmental interactions both with other living things and with nonliving.	The sub-atomic structural model and interactions between electric charges at the atomic scale can be used to explain the structure and interactions of matter.
Gross Gardens		
Acids & Bases & Colors - BOOM!		
Witches Fingers		
Mad Scientist Launcher		
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# Supplemental Information

Grades		High School			
SC20 - Activity	GR.HS-S.1-GLE.2	GR.HS-S.1-GLE.3	GR.HS-S.1-GLE.4	GR.HS-S.1-GLE.6	
Science Discipline	S.1 Physical Science	S.1 Physical Science	S.1 Physical Science	S.1 Physical Science	S.1 Physical Science
<b>Grade Level Expectations</b>	Chemical processes, their rates, their outcomes, and whether or not energy is stored or released can be understood in terms of collisions of molecules, rearrangement of atoms, and changes in energy as determined by properties of elements involved.	The strong nuclear interaction provides the primary force that holds nuclei together. Nuclear processes including fusion, fission, and radioactive decays of unstable nuclei involve changes in nuclear binding energies.	Newton's second law and the conservation of momentum can be used to predict changes in the motion of macroscopic objects.	Energy is a quantitative property of a system that depends on the motion and interactions of matter and radiation within that system.	
<b>Gross Gardens</b>					
<b>Acids &amp; Bases &amp; Colors - BOOM!</b>					
<b>Witches Fingers</b>					
<b>Mad Scientist Launcher</b>					
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# Supplemental Information

Grades		High School		
SC20 - Activity		GR.HS-S.1-GLE.7	GR.HS-S.1-GLE.9	GR.HS-S.2-GLE.1
Science Discipline		S.1 Physical Science	S.1 Physical Science	S.2 Life Science
Grade Level Expectations		Energy cannot be created or destroyed, but it can be transported from one place to another and transferred between systems.	Although energy cannot be destroyed, it can be converted to less useful forms as it is captured, stored and transferred.	DNA codes for the complex hierarchical organization of systems that enable life's functions.
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# Supplemental Information

Grades		High School			
SC20 - Activity		GR.HS-S.2-GLE.4	GR.HS-S.2-GLE.7	GR.HS-S.2-GLE.10	GR.HS-S.2-GLE.11
Science Discipline		S.2 Life Science	S.2 Life Science	S.2 Life Science	S.2 Life Science
Grade Level Expectations		Organisms interact with the living and nonliving components of the environment to obtain matter and energy.	Organisms interact in groups to benefit the species.	Evidence of common ancestry and diversity between species can be determined by examining variations including genetic, anatomical and physiological differences.	Genetic variation among organisms affects survival and reproduction.
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# Supplemental Information

Grades	High School
SC20 - Activity	GR.HS-S.2-GLE.12
Science Discipline	S.2 Life Science
Grade Level Expectations	The environment influences survival and reproduction of organisms over multiple generations.
Gross Gardens	
Acids & Bases & Colors - BOOM!	
Witches Fingers	
Mad Scientist Launcher	
Mad Scientist Doodle-Bot	
Mad Scientist Lair - Meets Some Math Standards	