**Course Title: Physical Science** 

Unit Title: Scientific Method

Length of Unit 2 Weeks

Grad	e Level: 7	Page 1 o	f 10	
Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
	I can Design and construct an egg from a fall Differentiate between qualitative and quantitative data Differentiate between an observation and inference Identify an independent and dependent variable in a lab experiment Test how many scoops of sugar it takes to make great tasting Kool Aid Use the metric system Accurately make metric conversions Measure volume three ways Define Density	Independent Variable Dependent Variable Quantitative Data Qualitative Data Inference Observation Hypothesis Conclusion	Formative Assessments: Quiz Wiz Warm-up Question 3, 2, 1, Rating Google Forms Kahoot Studyblue.com Homework RoundTable RoundRobin Inside Outside Circle Mix-Pair-Share RallyTable Summative Assessments: Unit Test Notebook Check	Cardboard Tape Glue Straws Goldenrod Stems with Galls

Seventh Grade Science Core Units

Course Title: Physical Science Unit Title: Measurement Length of Unit 4.5 Weeks

Grad	e Level: 7	Page	2 of 10	
Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
MS-PS2-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. [Clarification Statement: Examples of evidence for arguments could include data generated from simulations or digital tools; and charts displaying mass, strength of interaction, distance from the Sun, and orbital periods of objects within the solar system.]	I can Design and construct an armor to protect an egg from free fall. Differentiate between qualitative and quantitative data. Differentiate between observation and inference Identify an independent and dependent variable in a lab experiment. Test how many scoops of sugar it takes to make great tasting Kool-Aid. Use the Metric System Accurately use metric measuring Tools. Measure Volume three ways Define density.	Metric System Imperial System Potential Energy Kinetic Energy Metric System Volume Density Mass Weight	Formative Assessments: Quiz Wiz Warm-up Question 3, 2, 1, Rating Google Forms Kahoot Studyblue.com Homework RoundTable RoundRobin Inside Outside Circle Mix-Pair-Share RallyTable Summative Assessments: Unit Test Notebook Check	Rulers Graduated Cylinders Triple Beam Balances Metersticks Thermometers Beakers

Seventh Grade Science Core Units

#### **Course Title:Physical Science**

Unit Title: States of Matter/Periodic Table

#### Length of Unit 4.5 Weeks

Grad	e Level: 7	Page 3 of	f 10	
Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
MS-PS1-2. Analyze and interpret data on	I can	Physical Change	Formative Assessments:	Periodic Table
the properties of substances before and	Differentiate between a solid,	Chemical Change	Quiz Wiz	www.Ptable.com
after the substances interact to determine	liquid and a gas	Solid, Liquid, Gas,	Warm-up Question	http://www.nobeliefs.co
if a chemical reaction has occurred.		Plasma	3, 2, 1, Rating	<u>m/atom.htm</u>
[Clarification Statement: Examples of reactions	Describe what the molecule	Atom	Google Forms	
could include burning sugar or steel wool, fat	arrangement looks like in a	Molecule	Kahoot	
reacting with	solid, liquid and a gas	Phase Change	Studyblue.com	
sodium hydroxide, and mixing zinc with		Physical Properties	Homework	
hydrogen chloride.]	Explain phase changes and	Chemical Properties	RoundTable	
	give an example of each	Density	RoundRobin	
MS-PS1-5. Develop and use a model to		Melting Point	Inside Outside Circle	
describe how the total number of atoms	Define physical properties	Boiling Point	Mix-Pair-Share	
does not change in a chemical reaction		Solubility	RallyTable	
and thus mass is conserved. [Clarification	Define physical changes	Flammability		
Statement: Emphasis is on law of conservation		Odor	Summative Assessments:	
of matter and on physical models or drawings,	Define chemical properties	Toxicity	Unit Test	
including digital forms, that represent atoms.]		Acidity	Notebook Check	
	Define chemical changes	Corrosiveness		
MS-PS3-1. Construct and interpret		Solvent		
graphical displays of data to describe the	List the 6 ways matter	Solute		
relationships of kinetic energy to the	changes state.	Saturated		
mass of an object and to the speed of an		Atoms		
object. [Clarification Statement: Emphasis is	Make observations to identify	Molecules		
on descriptive relationships between kinetic	a chemical or physical change	Elements		
energy and mass separately from kinetic		Proton		
energy and speed. Examples could include	Give evidence on how i	Neutron		
riding a bicycle at different speeds, rolling	witnessed a physical or	Electron		
different sizes of rocks downhill, and getting hit	chemical change	Charges		
by a wiffle ball versus a tennis ball.]		Positive		
MO DO2 0. Develop a model to the still	List examples of physical and	Negative		
MS-PS3-2. Develop a model to describe	chemical changes	Neutral		
that when the arrangement of objects		Periodic Table	1	

			1
interacting at a distance changes,	Differentiate between an	Groups	
different amounts of potential energy are	atom and a molecule	Periods	
stored in the system. [Clarification		Synthetic	
Statement: Emphasis is on relative amounts of	Name the parts of an atom	Atomic Number	
potential energy, not on calculations of		Atomic Mass	
potential energy. Examples of objects within	Draw and label a picture of	Valence Electron	
systems interacting at varying distances could	an atom	Compound	
include: the Earth and either a roller coaster		Mixture	
cart at varying positions on a hill or objects at	Name the charges of protons,	Chemical Equation	
varying heights on shelves, changing the	neutrons and electrons	Conservation of	
direction/orientation of a magnet, and a		Matter	
balloon with static electrical charge being	Explain atomic number	Diffusion	
brought closer to a classmate's hair. Examples	L	Equilibrium	
of models could include representations,	Explain atomic mass	1	
diagrams, pictures, and written descriptions of systems.]	1		
systems.j	Identify groups and periods		
MS-PS3-5. Construct, use, and present	on the periodic table		
	I I I I I I I I I I I I I I I I I I I		
arguments to support the claim that when	Use the periodic table to tell		
the kinetic energy of an object changes,	how many protons, neutrons		
energy is transferred to or from the	and electrons are in one atom		
object. [Clarification Statement: Examples of	of an element		
empirical evidence used in arguments could			
include an inventory or other representation of	Count the number of atoms in		
the energy before and after the transfer in the	a molecule		
form of temperature changes or motion of			
object.]	Differentiate between an		
	element, compound and		
	mixture		
	Explain the Law of		
	Conservation of matter		

Course Title:Physical Science

Unit Title: Engineering

Length of Unit 2 Weeks

Grade Level: 7 Page			4 of 10	
Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	I can I can ask questions about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	Technology Engineer Cost Consumer Product	Formative Assessments: Quiz Wiz Warm-up Question 3, 2, 1, Rating Google Forms Kahoot Studyblue.com Homework RoundTable	TRACK Posters
MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	I can generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the		RoundRobin Inside Outside Circle Mix-Pair-Share RallyTable	
MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	I can analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.		Summative Assessments: Unit Test Notebook Check	
MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	I can develop a simple sketch to illustrate how the shape of an object helps it function as needed to solve a given problem.			

Course Title:Physical Science	Unit Title: Thermal Energy	Length of Unit 4 Weeks
G	rade Level: 7	Page 5 of 10

Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
MS-PS1-6. Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.* [Clarification Statement: Emphasis is on the design, controlling the transfer of energy to the environment, and modification of a device using factors such as type and concentration of a substance. Examples of designs could involve chemical reactions such as dissolving ammonium chloride or calcium chloride.] MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.* [Clarification Statement: Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.] MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. [Clarification Statement: Examples of experiments could include comparing final water temperatures after different masses of ice melted in the same volume of water with the same initial temperature, the temperature change of samples of different materials with the same mass as they cool or heat in the	I can Explain the difference between temperature and heat Differentiate between conduction, convection and radiation Use cooking popcorn as an example of conduction, convection and radiation Determine which material is the best insulator of heat Identify the different types of heating systems and how they transfer thermal energy Identify thermal energy transfers and give examples	Heat Energy Heat Loss Thermal Energy Thermal Expansion Heat Conduction Convection Radiation Insulator Conductor	Formative Assessments: Quiz Wiz Warm-up Question 3, 2, 1, Rating Google Forms Kahoot Studyblue.com Homework RoundTable RoundRobin Inside Outside Circle Mix-Pair-Share RallyTable Summative Assessments: Unit Test Notebook Check	Microwave Hot Plates Thermometers Variety of insulators Styrofoam Cups
environment, or the same material with different masses when a specific amount of energy is added.]				

**Course Title:Physical Science** 

Unit Title: Electricity/Magnetism Length of Unit 5 Weeks

Grade Level: 7

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Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources
MS-PS2-3. Ask questions about data to	I can	Electrons	Formative Assessments:	Batteries
determine the factors that affect the		Positive Charge	Quiz Wiz	Nails
strength of electric and magnetic forces.	Light a bulb with a wire and a	Negative Charge	Warm-up Question	Lemons
[Clarification Statement: Examples of devices	battery	Attract	3, 2, 1, Rating	Lightbulbs
that use electric and magnetic forces could		Repel	Google Forms	Paperclip
include electromagnets, electric motors, or	Predict which bulbs will light	Static Electricity	Kahoot	Aluminum foil
generators. Examples of data could include	based on pictures	Electric Discharge	Studyblue.com	Packaging tape
the effect of the number of turns of wire on the		Conductors	Homework	Magnets
strength of an electromagnet, or the effect of	Explain what static electricity	Insulators	RoundTable	Wire
increasing the number or strength of magnets on the speed of an electric motor.]	is	Series Circuit	RoundRobin	Iron filings
on the speed of an electric motor.]		Electric Current	Inside Outside Circle	
MS-PS2-5. Conduct an investigation and	Describe the difference	Parallel Circuit	Mix-Pair-Share	
evaluate the experimental design to	between conductors and	Alternating Current	RallyTable	
	insulators	Direct Current		
provide evidence that fields exist		Electrical Resistance	Summative Assessments:	
between objects exerting forces on each	Explain what a series circuit	Fuse	Unit Test	
other even though the objects are not in	is	Magnetic Field	Notebook Check	
contact. [Clarification Statement: Examples of		Poles		
this phenomenon could include the	Explain what a parallel circuit	Electromagnet		
interactions of magnets, electrically-charged strips of tape, and electrically-charged pith	is	Electric Motor		
balls. Examples of investigations could include		Temporary Magnet		
first-hand experiences or simulations.]	List the four things that affect	Permanent Magnet		
	electrical resistance	Conductivity		
		Conductor		
	Recognize interactions	Insulator		
	between magnetic fields	Current		
		Ohms		
	Explain how the strength of a	Voltage		
	magnet varies with increased			
	distance from the magnet			
	Identify the manual Cald C			
	Identify the magnetic field of			
	different shaped magnets			
	Understand how an			
	electromagnet works			

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**Course Title:Physical Science** 

Unit Title: Waves

Length of Unit 4.5 Weeks

Gra	de Level: 7	Page 7 of 10		
Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources

MS-PS4-1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. [Clarification Statement: Emphasis is on describing waves with both qualitative and quantitative thinking.] MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. [Clarification Statement: Emphasis is on both light and mechanical waves. Examples of models could include drawings, simulations, and written descriptions.]	I can Determine how the amplitude of a wave is related to the energy of the wave. Explain what a wave is and name the 3 types Explain what the amplitude and frequency of waves are. Explain what a mechanical wave is. Identify transverse, Longitudinal, and Surface Waves. Identify the parts of a wave and draw my own diagram List the properties of a wave. Explain how we	Energy Reflected Absorbed Transmitted Transparent Concave Convex Mirror Reflection Amplitude Frequency Light Waves Waves Mechanical Waves Mechanical Waves Mechanical Waves Medium Refraction Repeating Waves Wavelength Crest Trough Transverse Wave Longitudinal/Compression Wave Rarefaction Surface Wave	Formative Assessments: Quiz Wiz Warm-up Question 3, 2, 1, Rating Google Forms Kahoot Studyblue.com Homework RoundTable RoundRobin Inside Outside Circle Mix-Pair-Share RallyTable Summative Assessments: Unit Test Notebook Check	Slinky's Tuning Forks Rubber Bands Rope
		Rarefaction		

#### Course Title: Physical ScienceUnit Title: Electromagnetic SpectrumLength of Unit 4.5 Weeks

Grade	e Level: 7	Page	8 of 10	
Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources

MS PS2.5. Conduct an investigation and	Loop	Enorgy	Formative Accessmonts:	Oraqua abiasta
MS-PS2-5. Conduct an investigation and	I can	Energy	Formative Assessments:	Opaque objects
evaluate the experimental design to	List monulos of	EM Wave	Quiz Wiz	Transparent objects
provide evidence that fields exist	List examples of	EM Spectrum	Warm-up Question	Translucent objects
between objects exerting forces on each	communication through	Radio Wave	3, 2, 1, Rating	Mirrors
other even though the objects are not in	waves	Infrared Wave	Google Forms	Concave mirrors
contact. [Clarification Statement: Examples of		Visible Light	Kahoot	Convex mirrors
this phenomenon could include the	Explain differences among	UV Radiation	Studyblue.com	Mirras
interactions of magnets, electrically-charged	kinds of electromagnetic	X-Ray	Homework	Prisms
strips of tape, and electrically-charged pith	waves	Gamma Ray	RoundTable	
balls. Examples of investigations could include		Carrier Wave	RoundRobin	
first-hand experiences or simulations.]	Identify uses four different	GPS	Inside Outside Circle	
	kinds of electromagnetic		Mix-Pair-Share	
MS-PS4-3. Integrate qualitative scientific	waves		RallyTable	
and technical information to support the				
claim that digitized signals are a more	Compare and contrast AM		Summative Assessments: Unit	
reliable way to encode and transmit	and FM radio signals		Test	
information than analog signals.			Notebook Check	
[Clarification Statement: Emphasis is on a	Describe what sound is and			
basic understanding that waves can be used	how it is transmitted			
for communication purposes. Examples could				
include using fiber optic cable to transmit light	Explain how light interacts			
pulses, radio wave pulses in wifi devices, and	with different materials			
conversion of stored binary patterns to make				
sound or text on a computer screen.]	Explain the difference			
	between opaque, transparent			
	and translucent			
	Explain how a flat mirror,			
	concave mirror, and convex			
	mirror effect a beam of light			
	Describe how waves are			
	reflected absorbed, or			
	transmitted through various			
	materials.			
	muoriuis.			
	Explain reflection and			
	refraction of a light wave.			
	remaction of a light wave.			

Course Title: Physical Science Unit Title: Cells/Photosynthesis Length of Unit 5.5 Weeks

Grade Level: 7		Page 9 of 10		
Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources

MS-LS1-1. Conduct an investigation to	I can	Cell	Formative Assessments:	Microscopes
provide evidence that living things are		Tissue	Quiz Wiz	Iodine
made of cells; either one cell or many	Explain what a cell is	Prokaryotic	Warm-up Question	Slides
different numbers and types of cells.		Eukaryotic	3, 2, 1, Rating	Cover Slips
[Clarification Statement: Emphasis is on	Name the organelles in a	Organelles	Google Forms	Onion
developing evidence that living things are	plant and animal cells	Cell Membrane	Kahoot	Toothpicks
made of cells, distinguishing between living		Cell Wall	Studyblue.com	Colored Pencils
and nonliving things, and understanding that	Identify the functions of each	Nucleus	Homework	Yeast
living things may be made of one cell or many	part of the cell	Nuclear	RoundTable	Lettuce
and varied cells.]		Membrane	RoundRobin	
Molected Development	Identify organelles in a	Nucleolus	Inside Outside Circle	
MS-LS1-2. Develop and use a model to	human cheek cell.	Chromosomes	Mix-Pair-Share	
describe the function of a cell as a whole		Cytoplasm	RallyTable	
and ways parts of cells contribute to the	Identify the organelles found	Endoplasmic		
function. [Clarification Statement: Emphasis	only in a plant cell	Reticulum	Summative Assessments:	
is on the cell functioning as a whole system		Ribosomes	Unit Test	
and the primary role of identified parts of the	Create a foldable that	Mitochondria	Notebook Check	
cell, specifically the nucleus, chloroplasts,	includes all structures of cells	Golgi Bodies		
mitochondria, cell membrane, and cell wall.]		Lysosomes		
MS-LS1-3. Use argument supported by	Identify the organelles in an	Vacuoles		
<b>c</b> <i>y</i>	onion cell	Chloroplasts		
evidence for how the body is a system of		Photosynthesis		
interacting subsystems composed of	Explain the difference	Cellular		
groups of cells. [Clarification Statement:	between prokaryotic and	Respiration		
Emphasis is on the conceptual understanding	eukaryotic cells	Osmosis		
that cells form tissues and tissues form organs specialized for particular body functions.		Diffusion		
Examples could include the interaction of		Active Transport		
subsystems within a system and the normal	Compare how a plant cell	Stomata		
functioning of those systems.]	relates to a city	Specialized Cells		
······································				
MS-LS1-6. Construct a scientific	Build a model of a cell and			
explanation based on evidence for the	explain its function			
role of photosynthesis in the cycling of				
matter and flow of energy into and out of	Explain the function of a			
organisms. [Clarification Statement:	plasma membrane			
Emphasis is on tracing movement of matter	Frankin the name of			
	1 1			
	pnotosyntnesis			
and flow of energy.]	Explain the process of photosynthesis			

MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. [Clarification Statement: Emphasis is on describing that molecules are broken apart and put back together and that in this process, energy is released.]
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#### Course Title:Physical Science

Unit Title: Organs Length of Unit 2 Weeks

Grade Level: 7		Page 10 of 10		
Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Suggested Assessment	Possible Resources

MS-LS1-7. Develop a model to describe	I can	Organ	Formative Assessments:	youtube.com
how food is rearranged through chemical		Organ System	Quiz Wiz	-
reactions forming new molecules that	Explain the difference	Muscle	Warm-up Question	
support growth and/or release energy as	between tissues, organs and	Bones	3, 2, 1, Rating	
this matter moves through an organism.	organ systems	Veins	Google Forms	
[Clarification Statement: Emphasis is on		Tissue	Kahoot	
describing that molecules are broken apart	Explain why animals need		Studyblue.com	
and put back together and that in this process,	specialized cells		Homework	
energy is released.]			RoundTable	
			RoundRobin	
			Inside Outside Circle	
			Mix-Pair-Share	
			RallyTable	
			Summative Assessments: Unit	
			Test	
			Notebook Check	