6th Grade Science Curriculum Guide

(See linked folders with additional resources to pull from)

Week	Stan	dard	Major Concept/Topic	Possible Resources	Vocabulary	Spiral Review
Week 1			Beginning of the year skills including lab safety, notebooks, rituals & routines, expectations	Quizziz on lab rules		(2 sided paper or edulastic) Water cycle 5th grade review
Week 2	Nature of Standard SC.6.N.1.1 SC.6.N.1.2 SC.6.N.3.4	Science Cognitive Level	 Define a problem from the 6th grade curriculum in order to : use appropriate reference materials to support scientific understanding; plan & carry out scientific investigations of various types including <i>observations</i> & <i>experiments</i> Identifying variables Collecting & organizing data Interpreting data in charts, tables, and graphs Analyze information Make Predictions Defend Conclusions Explain why scientific investigations should be replicable Identify the role of models in the context of the sixth grade science benchmark 	Textbook: HMH Book pages 6 + 8, 26-35, 40-45 HMH- pages 16-18 Additional Resource: 6th Grade Coach Book Lessons 1 Pages-12-15 (Scientific Investigation) Lesson 2 Pages 16-19 (Designing and Conducting an Experiment) Lesson 3 Pages 20-24 (Organizing and Analysing Data) Lesson 4 - pages 25-28 (Scientific Knowledge) Lesson 6 - Pages 32-48 Using Models in Science	Control Independent & Dependent Variable Hypothesis Model Claim, Evidence, Reason Opinion Data Inference Observation Experiment Quantitative vs Qualitative Types of Graphs Replication vs Repetition	Water cycle 5th grade review

Week 3	Standard SC.6.N.1.3 SC.6.N.2.2 SC.6.N.3.1 SC.6.N.3.3	Cognitive Level	 Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefit and limitations of each. Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered Recognize and Explain that a scientific theory is a well supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Recognize that a scientific relationship under given conditions in the natural world. This scientific laws are different from societal laws Give several examples of scientific laws 	6th Grade Coach Book Lesson 5- pages 29-31 (Scientific theories and Laws)	Experiment Investigation Theory Law Evidence	SC.5.E.7.3 Weather-temp, air presser, humidity, wind
	Nature of	f Science	CBL- class project to demonstrate scientific method			SC.5.E.7.3 Elements of Weather-
Week 4	Standard	Cognitive Level	Examples: Paper towels Paper airplanes			temp, air pressure, humidity, wind
	SC.6.N.1.1		Popcorn			
	SC.6.N.1.4					
	SC.6.N.1.5		Unit Test on Nature of Science			
	SC.6.N.1.5		Unit Test on Nature of Science			

Week 5	Standard SC.6.E.7.1	Cognitive Level	Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system	Textbook: Unit 3 Lesson 3 HMH page 174-179 Additional Resources: Coach pg. 59-62 (Heat Transfer) Popping Popcorn examples	Energy Transfer Temperature Heat Radiation Convection Conduction	NOS: Identifying Variables Repetition vs Replication Laws & Theory
Week 6	Standard <u>SC.6.E.7.2</u> <u>SC.6.E.7.4</u>	Cognitive Level	Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate Mini Quiz on Vocab or Spiral (NOS &	Textbook: Unit 3 HMH pages 144- 151 HMH pg. 160-163 Additional Resources: Coach book pages 79-82 (Earth'sAtmosphere)	Earth systems Geosphere Hydrosphere Cryosphere Atmosphere Biosphere Air pressure Troposphere Stratosphere Mesosphere Thermosphere Ozone layer	NOS: Identifying Variables Repetition vs Replication Laws & Theory
Week 7	Standard <u>SC.6.E.7.5</u> <u>SC.6.E.7.3</u>	Cognitive Level	Sth grade Weather)Explain how energy provided by the Sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as temperature, air pressure,wind direction and speed, and humidity and pressure	Textbook: HMH pg. 160-163 HMH pg. 202-207 HMH pg 224-231 Additional Resources: Coach Book pages 75-78 (Oceans Currents) Coach Book pages 63-66 (Water Cycle)	Greenhouse effect Water Cycle Wind Jet stream Local winds Global winds Ocean current Surface current Deep currents Convection currents Water cycle	NOS: Identifying Variables Repetition vs Replication Laws & Theory

Week 8	Standard SC.6.E.7.6 SC.6.E.7.7 SC.6.E.7.8 SC.6.E.7.9	Cognitive Level	 Differentiate between weather and climate Investigate how natural disasters have affected human life in Florida Describe ways human beings protect themselves from hazardous weather and sun exposure. Describe how the composition and structure of the atmosphere protects life and insulates the planet 	Textbook: HMH pg. 236-238, 240, 250-259 HMH pg. 296-303 HMH pg. 164-165 HMH pg. 188, 190-192, 194-195 Additional Resources: Coach Book pages 71-74 (Winds)	Weather Drought Humidity Air mass Front Climate Latitude Topography Elevation	NOS: Identifying Variables Repetition vs Replication Laws & Theory
Week 9			Catch up on any work & Review Earth Science Unit Test on Earth Science			Earth science Heat transfer Layers of the atmosphere
End of 1st Quarter						
	Standard		Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical	Textbook: HMH pgs. 96- 104, 112-114, 118-119, 86-91	Physical weathering Chemical weathering	Earth science Heat transfer
		Cognitive Level	weathering, erosion, and deposition	Additional Resources: Coach Book pages 50-54	Oxidation Acid precipitation	Layers of the atmosphere

			 Beach erosion Dunes Caves Sinkholes 		Shoreline Beach & Sandbar Barrier island Dune Sinkhole Glacier Landslide	
Week 11	Standard <u>SC.6.L.14.1</u> <u>SC.6.L.14.2</u>	Cognitive Level	Quiz on Weathering, Erosion, Deposition & LandformsIdentify microscope parts & describe how to properly use microscopeDescribe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organismsInvestigate and explain the components of the scientific theory of cells (cell theory) Include:• All organisms are composed of cells• All cells come from pre-existing cells• And cells are the basic unit of life	Textbook: HMH pg. 424-427- Hierarchy HMH-392, 394-395, 397- Cell Theory Additional Resources: Coach pg. 173-179 (Examining Cell) Coach pg. 136-139- (The Organization of Living Things) Coach pg. 128-131- (cell theory)	Organism Tissue Organ Organ system Structure Function Cell Unicellular multicellular	Earth Science Earth spheres

Week 12	Standard SC.6.L.14.4	Cognitive Level	Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplast, mitochondria, and vacuoles Quiz on Spiral or Vocab (heat transfer & spheres)	HMH-416 cell wall, vacuole	Cytoplasm Organelle Cell membrane Nucleus Chloroplast Mitochondria Vacuole Cell wall	Earth Science Earth spheres
Week 13	Standard <u>SC.6.L.14.4</u>	Cognitive Level	Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplast, mitochondria, and vacuoles Test on Levels of Organization & Cell Parts	Textbook: HMH pg. 369-Nucleus, cell membrane, cytoplasm HMH- 414- Mitochondrion HMH-416 cell wall, vacuole HMH- 417- chloroplast Additional resources: Coach pg. 132-135 (Comparing Plant and Animal Cells)		NOS: Hypothesis Laws & Theory
Week 14			Catchup on Monday Tuesday Thanksgiving Week Thur-Fri			

Week 15 Week 16	StandardCognitive LevelSC.6.L.14.3SC.6.L.14.5	5		Homeostasis Photosynthesis Cellular respiration mitosis	NOS: Hypothesis Laws & Theory Earth Science Weather
Week 17		¹ / ₂ Year Assessment (NOS, Earth & Life Science up TO Body Systems)			Earth Science Weather
		CHRISTMAS BREAK	<u> </u>		
Week 18	StandardCognitive LevelSC.6.L.14.5	Body systems-Circulatory/ Respiratory	Textbook: HMH-pg.504-505, 508- 511, 513-514	Cardiovascular system Lymphatic system Respiratory system Blood Veins Arteries Lymph alveoli	Earth Science Weathering , erosion, deposition

Week 19	StandardCognitive LevelSC.6.L.14.5	Body system- Digestive/Excretory Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) Describe ways these systems interact with each other to maintain homeostasis	Textbook: HMH pg.522-529	5 5	Earth Science Weathering, erosion, deposition
End of 2nd Quarter					

Week 20	StandardCognitive LevelSC.6.L.14.5	Body system- Nervous/ Endocrine Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) Describe ways these systems interact with each other to maintain homeostasis	Textbook: HMH pg. 534-542 HMH pg. 552-555, 558, 574-579, 586-591 Coach pg. 140-147,(Human Body System) pg. 148-151 (Organisms that infect the Human Body)	Nervous system Brain Spinal cord Endocrine system Hormone Gland Sperm Testes Penis Egg Ovary Uterus Vagina Embryo Placenta	Life Science Cell parts
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Week 21	StandardCognitive LevelSC.6.L.14.5SC.6.L.14.6	Reproductive/ImmuneIdentify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) Describe ways these systems interact with each other to maintain homeostasisCompare and Contrast types of infectious agents that may infect the human body, including viruses, bacteria,fungi, and parasitesMini quiz on Spiral or Vocab (Cell Parts)	Textbook: HMH 552-555 HMH pg.574-581	Immune system Antibody Immunity Vaccine T cells B cells Pathogen Noninfectious disease Infectious disease Antibiotic Antiviral drug	Life Science Cell parts
Week 22	StandardCognitive LevelSC.6.L.15.1	Analyze and describe how and why organisms are classified according to shared characteristics, with emphasis on the Linnaean system combined with the concept of domains	Textbook: HMH pg. 454-462 Additional Resources: Coach pg. 152-157 (Classifying Living things)	Linnaean Species Genus Domain Bacteria Archaea Eukarya Protista Fungi Plantae Animalia	NOS: Identifying variables in life science
Week 23	StandardCognitive LevelSC.6.L.15.1	Analyze and describe how and why organisms are classified according to shared characteristics, with emphasis on the Linnaean system combined with the concept of domains Quiz on Spiral or Vocab (NOS)	Textbook: HMH pg. 454-462	Linnaean Species Genus Domain Bacteria Archaea Eukarya Protista Fungi Plantae Animalia	NOS: Identifying variables in life science

Week 24			Catch Up/Review Life Science Unit Test on body systems & classification & cells			Life Science Body Systems
Week 25	Standard <u>SC.6.P.11.1</u>	Cognitive Level	Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa. Quiz on Spiral or Vocab (Body Systems)	Textbook: HMH pg. 320-323 HMH- pg. 325 Additional Resources: Coach pg. 98-101 (Potential and Kinetic Energy)	Energy Kinetic Potential Mechanical Law of conservation of energy	Life Science Body Systems
Week 26	Standard SC.6.P.13.2	Cognitive Level	Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are Discuss weight vs mass	Textbook: HMH pg. 374-379 Additional Resources: Coach pg. 111-113 (Gravity)	Gravity Orbit Free fall Law of gravity Inertia	Life Science Homeostasis

Week 27	Standard SC.6.P.13.1	Cognitive Level	Investigate and describe types of forces, including contact forces and forces acting at a distance, such as electrical , magnetic , and gravitational Quiz on Spiral or Vocab(Homeostasis)	Textbook: HMH pg. 358-364 HMH pg. 366-367 Additional Resources: Coach pg. 107-110, (Forces) Pages 114-117 (How Forces Change Motion)	Force Net force acceleration Balanced forces Unbalanced forces	Life Science Homeostasis
Week 28	Standard <u>SC.6.P.13.3</u>	Cognitive Level	Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.			Life Science: Classification & Linnaean
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Week 29			Review & Test on Energy forms, Energy transformation and forces			Life Science: Classification & Linnaean
End of 3rd Quarter			**Quarter ends on Th	IURSDAY APRIL 1**		
Week 30	Standard <u>SC.6.P.12.1</u>	Cognitive Level	Measure and graph distance versus time for an object moving at a constant speed. Interpret the relationship between distance and time for constant speed	HMH pg. 334-340 Coach pg 102-106 (measuring and Graphing Speed)	Position Reference point Motion speed	Physical Science: Forms of energy Energy transformation
Week 31			Review - Nature of Science Quiz on Spiral or Vocab (Classification AND Forms of Energy)			Physical Science: Gravity forces
Week 32			Review- Earth Science			Physical Science: Forces & Graphs
Week 33			Review- Life Science			Nature of Science
Week 34			Review- Physical Science			Earth Science

Week 35	EOY Assessments or Review	Life Science
Week 36	EOY Assessments or Review	
Week 37	Teach a few 7th grade standards	
Week 38	Teach a few 7th grade standards/fun activities	
	**Last week of school **	

Standards for Reference:

	Standards		
Quarter 1	SC.6.N.1.1 Define a problem from the sixth grade curriculum: use appropriate reference materials to support scientific understanding; plan and carry out scientific investigations of various types, such as systematic observations or experiments; identify variables; collect and organize data; interpret data in charts, tables, and graphics; analyze information; make predictions; and defend conclusions. SC.6.N.1.2 Explain the difference between an experiment and other types of scientific investigation, and explain the relative benefits and limitations of each. SC.6.N.1.4 Discuss; compare; and collar duration due to the systeminents, but also in creating explanations that fit wedence. SC.6.N.1.4 Explain that science involves creativity, not just in designing experiments, but also in creating explanations that fit wedence. SC.6.N.2.1 Distinguish science from other activities involving thought. SC.6.1.5.1 Recognize and explain that a scientific throwing is durable because it is open to change as new evidence or interpretations are encountered. SC.6.1.5.2 Explain that scientific throwing is durable because it is open to change as new evidence or interpretations and geno science is very or science is very or different than how its used in everyday life. SC.6.E.6.1 Describe and give examples of ways in which Earth's surface is built up and ion work by physical and chemical weathering, erosion, and deposition. SC.6.E.7.2 Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate. SC.6.E.7.2 Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate. SC.6.E.7.7 Explain that science is very and access and explained and hydrosphere. SC.6.E.7.7 Borsito and how inderactions among the geosphere, hydrosphere, cryosphere, atmosphere, and bigneters. Sci.6.E.7.9 Describe how global patterns such as the jet stream and ocean currents influence local weather in measurable terms such as tempe		
Quarter 2	SC.6.L.14.1 Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms. SC.6.L.14.2 Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multicellular), all cells come from pre-existing cells, and cells are the basic unit of life.		

	 SC.6.L.14.3 Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing. SC.6.L.14.4 Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles SC.6.L.14.5 Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain homeostasis. SC.6.L.14.6 Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites. SC.6.L.15.1 Analyze and describe how and why organisms are classified according to shared characteristics, with emphasis on the Linnaean system combined with the concept of Domains.
Quarter 3	SC.6.P.11.1 Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa. SC.6.P.12.1 Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship. SC.6.P.13.1 Investigate and describe types of forces, including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational. SC.6.P.13.2 Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are. SC.6.P.13.3 Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both.
Quarter 4	Finish Physical and Review