6th Grade Science Curriculum Guide

(See linked folders with additional resources to pull from)

<table>
<tr><th>Week</th><th>Standard</th><th>Major Concept/Topic</th><th>Possible Resources</th><th>Vocabulary</th><th>Spiral Review</th></tr>
<tr><td>Week 1</td><td></td><td>Beginning of the year skills including lab safety, notebooks, rituals & routines, expectations</td><td>Quizziz on lab rules</td><td></td><td>(2 sided paper or edulastic)

Water cycle
5th grade review</td></tr>
<tr><td>Week 2</td><td>Nature of Science

<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.N.1.1</td><td></td></tr><tr><td>SC.6.N.1.2</td><td></td></tr><tr><td>SC.6.N.3.4</td><td></td></tr></table></td><td>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 observations & experiments
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

Mini Quiz on Vocab, Spiral or Nature of Science</td><td>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</td><td>Control
Independent & Dependent Variable
Hypothesis
Model
Claim, Evidence, Reason
Opinion
Data
Inference
Observation
Experiment
Quantitative vs Qualitative
Types of Graphs
Replication vs Repetition</td><td>Water cycle
5th grade review</td></tr>
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<td>Week 3</td>
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<tr><th>Standard</th><th>Cognitive Level</th></tr>
<tr><td>SC.6.N.1.3</td><td></td></tr>
<tr><td>SC.6.N.2.2</td><td></td></tr>
<tr><td>SC.6.N.3.1</td><td></td></tr>
<tr><td>SC.6.N.3.3</td><td></td></tr>
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<td>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 law is a description of a specific relationship under given conditions in the natural world. This scientific laws are different from societal laws

Give several examples of scientific laws</td>
<td>6th Grade Coach Book
Lesson 5- pages 29-31
(Scientific theories and Laws)</td>
<td>Experiment
Investigation
Theory
Law
Evidence</td>
<td>SC.5.E.7.3

Weather-temp, air presser, humidity, wind</td>
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<td>Week 4</td>
<td>Nature of Science
<table>
<tr><th>Standard</th><th>Cognitive Level</th></tr>
<tr><td>SC.6.N.1.1</td><td></td></tr>
<tr><td>SC.6.N.1.4</td><td></td></tr>
<tr><td>SC.6.N.1.5</td><td></td></tr>
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<td>CBL- class project to demonstrate scientific method

Examples:
Paper towels
Paper airplanes
Popcorn

Unit Test on Nature of Science</td>
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<td>SC.5.E.7.3

Elements of Weather- temp, air pressure, humidity, wind</td>
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Week 5	Standard / Cognitive Level SC.6.E.7.1	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 / Cognitive Level SC.6.E.7.2 SC.6.E.7.4	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 & 5th grade Weather)**	**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 Greenhouse effect	**NOS:** Identifying Variables Repetition vs Replication Laws & Theory
Week 7	Standard / Cognitive Level SC.6.E.7.5 SC.6.E.7.3	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)	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	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.E.7.6</td><td></td></tr><tr><td>SC.6.E.7.7</td><td></td></tr><tr><td>SC.6.E.7.8</td><td></td></tr><tr><td>SC.6.E.7.9</td><td></td></tr></table>	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					
Week 10	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.E.6.1</td><td></td></tr><tr><td>SC.6.E.6.2</td><td></td></tr></table>	Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition Recognize that there are a variety of different landforms on Earth's surface such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes, and relate these landforms as they apply to Florida. **Include:**	**Textbook:** HMH pgs. 96-104, 112-114, 118-119, 86-91 **Additional Resources:** Coach Book pages 50-54 (Weathering, Erosion, and Deposition) Coach Book pages 55-58 (Landforms)	Physical weathering Chemical weathering Oxidation Acid precipitation Abrasion Erosion & Deposition Floodplain Delta Alluvial fan Groundwater	**Earth science** Heat transfer Layers of the atmosphere

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Beach erosion
Dunes
Caves
Sinkholes

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<td>Shoreline
Beach & Sandbar
Barrier island
Dune
Sinkhole
Glacier
Landslide</td>
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<td>Week 11</td>
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<table>
<tr><th>Standard</th><th>Cognitive Level</th></tr>
<tr><td>SC.6.L.14.1</td><td></td></tr>
<tr><td>SC.6.L.14.2</td><td></td></tr>
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Quiz on Weathering, Erosion, Deposition & Landforms

Identify microscope parts & describe how to properly use microscope

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

Investigate 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

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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)
</td>
<td>Organism
Tissue
Organ
Organ system
Structure
Function
Cell
Unicellular
multicellular</td>
<td>Earth Science
Earth spheres</td>
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Week 12	<table><tr><td>Standard</td><td>Cognitive Level</td></tr><tr><td>SC.6.L.14.4</td><td></td></tr></table>	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)**	**Textbook:** HMH pg. 369-Nucleus, cell membrane, cytoplasm HMH- 414- Mitochondria HMH-416 cell wall, vacuole HMH- 417- chloroplast **Additional resources:** Coach pg. 132-135 (comparing Plant and Animal Cells	Cytoplasm Organelle Cell membrane Nucleus Chloroplast Mitochondria Vacuole Cell wall	**Earth Science** Earth spheres
Week 13	<table><tr><td>Standard</td><td>Cognitive Level</td></tr><tr><td>SC.6.L.14.4</td><td></td></tr></table>	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	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.L.14.3</td><td></td></tr><tr><td>SC.6.L.14.5</td><td></td></tr></table>	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 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 **Quiz on Spiral or Vocab (NOS)**	**Textbook:** HMH 438-441, 445, 484-485	Homeostasis Photosynthesis Cellular respiration mitosis	**NOS:** Hypothesis Laws & Theory
Week 16		Catch up Week or Enrichment Week Review Weeks 11-14 **Unit Test (Week 11-14)**			**Earth Science** Weather
Week 17		**½ Year Assessment** **(NOS, Earth & Life Science up TO Body Systems)**			**Earth Science** Weather
CHRISTMAS BREAK!!					
Week 18	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.L.14.5</td><td></td></tr></table>	Body systems-Circulatory/ Respiratory 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 **Mini Quiz on Spiral or Vocab (Weather)**	**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	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.L.14.5</td><td></td></tr></table>	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	Digestive system Esophagus Stomach Small and large intestine Pancreas Liver Excretory system Kidney urine	**Earth Science** Weathering, erosion, deposition
End of 2nd Quarter					

Week 20	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.L.14.5</td><td></td></tr></table>	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

Week 21	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.L.14.5</td><td></td></tr><tr><td>SC.6.L.14.6</td><td></td></tr></table>	**Reproductive/Immune** 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 Compare and Contrast types of infectious agents that may infect the human body, including viruses, bacteria,fungi, and parasites **Mini 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	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.L.15.1</td><td></td></tr></table>	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	<table><tr><th>Standard</th><th>Cognitive Level</th></tr><tr><td>SC.6.L.15.1</td><td></td></tr></table>	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

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<td>Week 24</td>
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<td>Catch Up/Review Life Science

Unit Test on body systems & classification & cells</td>
<td></td>
<td></td>
<td>Life Science
Body Systems</td>
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<td>Week 25</td>
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<tr><th>Standard</th><th>Cognitive Level</th></tr>
<tr><td>SC.6.P.11.1</td><td></td></tr>
</table>
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<td>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)</td>
<td>Textbook:
HMH pg. 320-323
HMH- pg. 325

Additional Resources:
Coach pg. 98-101 (Potential and Kinetic Energy)</td>
<td>Energy
Kinetic
Potential
Mechanical
Law of conservation of energy</td>
<td>Life Science
Body Systems</td>
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<td>Week 26</td>
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<tr><th>Standard</th><th>Cognitive Level</th></tr>
<tr><td>SC.6.P.13.2</td><td></td></tr>
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<td>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</td>
<td>Textbook:
HMH pg. 374-379

Additional Resources:
Coach pg. 111-113 (Gravity)</td>
<td>Gravity
Orbit
Free fall
Law of gravity
Inertia</td>
<td>Life Science
Homeostasis</td>
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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: SC.6.P.13.3 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
	SPRING BREAK !! 🎉 🎉				
Week 29		**Review & Test on Energy forms, Energy transformation and forces**			**Life Science:** Classification & Linnaean
End of 3rd Quarter	**Quarter ends on THURSDAY APRIL 1**				
Week 30	Standard: SC.6.P.12.1 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 why scientific investigations should be replicable. SC.6.N.1.3 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 negotiate methods used, results obtained, and explanations among groups of students conducting the same investigation. SC.6.N.1.5 Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence. SC.6.N.2.1 Distinguish science from other activities involving thought. SC.6.N.2.2 Explain that scientific knowledge is durable because it is open to change as new evidence or interpretations are encountered. SC.6.N.3.1 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. Thus, the use of the term theory in science is very different than how it is used in everyday life. SC.6.E.6.1 Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition. SC.6.E.6.2 Recognize that there are a variety of different landforms on Earth's surface, such as coastlines, dunes, rivers, mountains, glaciers, deltas, and lakes, and relate these landforms as they apply to Florida. SC.6.E.7.1 Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system. 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.7.3 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 precipitation. SC.6.E.7.4 Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere. SC.6.E.7.5 Explain how energy provided by the Sun influences global patterns of atmospheric movement and the temperature differences between air, water, & lland. SC.6.E.7.6 Differentiate between weather and climate. SC.6.E.7.9 Describe how the composition and structure of the atmosphere protects life and insulates the planet.
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