6th Grade Science Curriculum Map

Horry County Schools

2019 - 2020

Notes for all units:

1. Teacher times are based on 45-50 minute class periods. Times are estimates and actual times may vary.
2. All **links** are in blue font and underlined.
3. Green highlight indicates Creation/Collaboration activities required by the district.
4. Blue highlight indicates Blended Learning activities required by the district.
5. **Purple Highlight** indicates examples of activities that will yield high level thinking strategies.
   - **(Q) -** provides a balanced mix of question types
   - **(GS) -** instructional grouping arrangements adequately enhance student understanding & learning efficiency
   - **(T) -** thoroughly teaches multiple types of thinking
   - **(PS) -** implements & reinforces multiple problem solving types
   - **(SW) -** requires students to connect ideas to prior learning and some life experiences
6. All activities that meet the state computer science standards must be marked with this icon 💻
7. Orange Highlight indicates a Performance Task 💡💻
8. For links to websites such as Discovery TechBook the user must log into the site before clicking the link. If not, then the site will pop up and the user must log in. These items will be marked: **(req Log In)**

There are additional resources in the HCS Science Curriculum Folder. To access these files click on the subject and then the "Lesson Resources" folder.

Semester 1 Calendar

August				
M	T	W	T	F
			1	2
5	6	7	8	9
12	13	14	15	16
19	20	21	22	23
26	27	28	29	30

September				
M	T	W	T	F
2	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23	24	25	26	27
30				

October				
M	T	W	T	F
	1	2	3	4
7	8	9	10	11
14	15	16	17	18
21	22	23	24	25
28	29	30	31	

November				
M	T	W	T	F
				1
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22
25	26	27	28	29

December				
M	T	W	T	F
2	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23	24	25	26	27
30	31			

January				
M	T	W	T	F
		1	2	3
6	7	8	9	10
13	14	15	16	17

Key	
	School Closed
	Work Day
	Early Release
	Weather
	Energy
	Plants
	Animals
	Common Assessment Window

Semester 2 Calendar

January				
M	T	W	T	F
20	21	22	23	24
27	28	29	30	31

February				
M	T	W	T	F
3	4	5	6	7
10	11	12	13	14
17	18	19	20	21
24	25	26	27	28

March				
M	T	W	T	F
2	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23	24	25	26	27
30	31			

April				
M	T	W	T	F
		1	2	3
6	7	8	9	10
13	14	15	16	17
20	21	22	23	24
27	28	29	30	

May				
M	T	W	T	F
				1
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22
25	26	27	28	29

June				
M	T	W	T	F
1	2	3	4	

Key	
	School Closed
	Work Day
	Early Release
	Weather
	Energy
	Plants
	Animals
	Common Assessment Window

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Weather Unit 08/19/19- 10/18/19		Energy Unit 10/21/19- 12/20/19	
Week 1 8/19-8/23 Lab Safety/ Pre-assessment	Week 6 9/23-9/27 Climate & Weather Tools	Week 10 10/21-10/25 Mechanical Energy	Week 15 11/25-11/26 Dimensional Analysis
Week 2 8/26-8/30 Condensation & Precipitation Water Cycle	Week 7 9/30-10/4 Air Masses & Fronts	Week 11 10/28-11/1 Inclined Planes	Week 16 12/2-12/6 Electric Motors
Week 3 9/3-9/6 Earth's Surfaces and Winds	Week 8 10/7-10/11 Weather Maps	Week 12 11/4-11/8 Mechanical Efficiency	Week 17 12/9-12/13 Electric Generators
Week 4 9/9-9/13 Oceans and Climate	Week 9 10/16-10/18 Review & Common Assessments	Week 13 11/11-11/15 Heat Transfer	Week 18 12/16-12/20 Review & Common Assessments
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Table of Contents - Second Semester

Subject - Unit 1 - Weather

Teaching Dates: 08/19/19- 10/18/19	Common Assessment Window: 10/10/19- 10/18/19

Standards: *6.E.2* *Support Document pages 12-28*

Conceptual Understandings: *(Google Site to explain the SEP's)*

SEP Performance Indicators:
6.S.1 The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.
6.S.1A Conceptual Understanding: The practices of science and engineering support the development of science concepts, develop the habits of mind that are necessary for scientific thinking, and allow students to engage in science in ways that are similar to those used by scientists and engineers.

Tested SEP Indicators within this unit:
6.S.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims.
6.S.1A.2 Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others
6.S.1A.3 Plan and conduct controlled scientific investigations to answer questions, test hypotheses, and develop explanations: (1) formulate scientific questions and testable hypotheses, (2) identify materials, procedures, and variables, (3) select and use appropriate tools or instruments to collect qualitative and quantitative data, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.
6.S.1A.4 Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs.

6.S.1A.5 Use mathematical and computational thinking to (1) use and manipulate appropriate metric units, (2) collect and analyze data, (3) express relationships between variables for models and investigations, or (4) use grade-level appropriate statistics to analyze data.
6.S.1A.6 Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams.
6.S.1A.7 Construct and analyze scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.

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Subject - Unit 1 - Weather

Teaching Dates: 08/19/19- 10/18/19	**Common Assessment Window:** 10/10/19- 10/18/19

Standards: *6.E.2* *Support Document pages 12-28*

Conceptual Understandings: *(Google Site to explain the SEP's)*

SEP Performance Indicators:
6.S.1A.8 Obtain and evaluate scientific information to (1) answer questions, (2) explain or describe phenomena, (3) develop models, (4) evaluate hypotheses, explanations, claims, or designs or (5) identify and/or fill gaps in knowledge. Communicate using the conventions and expectations of scientific writing or oral presentations by (1) evaluating grade-appropriate primary or secondary scientific literature, or (2) reporting the results of student experimental investigations.
6.S.1B Conceptual Understanding: Technology is any modification to the natural world created to fulfill the wants and needs of humans. The engineering design process involves a series of iterative steps used to solve a problem and often leads to the development of a new or improved technology.
6.S.1B.1 Construct devices or design solutions using scientific knowledge to solve specific problems or needs: (1) ask questions to identify problems or 2 needs, (2) ask questions about the criteria and constraints of the device or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

Weather Performance Indicators:
6.E.2 The student will demonstrate an understanding of the interactions within Earth's systems (flow of energy) that regulate weather and climate.
6.E.2A Conceptual Understanding: Earth's atmosphere, an envelope of gases that surround the planet, makes conditions on Earth suitable for living things and influences weather. Water is always moving between the atmosphere (troposphere) and the surface of Earth as a result of the force of gravity and energy from the Sun. The Sun is the driving energy source for heating Earth and for the circulation of Earth's atmosphere.
6.E.2A.1 Develop and use models to exemplify the properties of the atmosphere (including the gases, temperature and pressure differences, and altitude changes) and the relative scale in relation to the size of Earth.
6.E.2A.2 Critically analyze scientific arguments based on evidence for and against how different phenomena (natural and human induced) may contribute to the composition of Earth's atmosphere.
6.E.2A.3 Construct explanations of the processes involved in the cycling of water through Earth's systems (including transpiration, evaporation, condensation and crystallization, precipitation, and downhill flow of water on land).

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Subject - Unit 1 - Weather

Teaching Dates: 08/19/19- 10/18/19	**Common Assessment Window:** 10/10/19- 10/18/19

Standards: *6.E.2* *Support Document pages 12-28*

Conceptual Understandings: *(Google Site to explain the SEP's)*

Weather Performance Indicators:
6.E.2A.3 Construct explanations of the processes involved in the cycling of water through Earth's systems (including transpiration, evaporation, condensation and crystallization, precipitation, and downhill flow of water on land).
6.E.2B Conceptual Understanding: The complex patterns of changes and movement of water in the atmosphere determined by winds, landforms, ocean temperatures and currents, and convection are major determinants of local weather patterns and climate. Technology has enhanced our ability to measure and predict weather patterns.
6.E.2B.1 Analyze and interpret data from weather conditions (including wind speed and direction, air temperature, humidity, cloud types, and air pressure), weather maps, satellites, and radar to predict local weather patterns and conditions.
6.E.2B.2 Develop and use models to explain how relationships between the movement and interactions of air masses, high and low pressure systems, and frontal boundaries result in weather conditions and storms (including thunderstorms, hurricanes and tornadoes).
6.E.2B.3 Develop and use models to represent how solar energy and convection impact Earth's weather patterns and climate conditions (including global winds, the jet stream, and ocean currents).
6.E.2B.4 Construct explanations for how climate is determined in an area (including latitude, elevation, shape of the land, distance from water, global winds, and ocean currents).

Week 1: 8/19 - 8/23 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Teacher's Choice	1	Notebook Setup with FOSS Resource or COE Resource p. 7	School/Classroom procedures Set up science notebook/journal Lab-Aids Login Login with Google	Ultimate Lab Safety SpongeBob Lab Safety PPT/Lab Safety Student Sheet/Spongebob Vari. *Make a GimKit Account for fun review all year.	How will I set up my notebook to help me stay organized with my notes and assignments throughout this class?	6.S.1-6.S.8
SEP's Introduction & Lab Safety Procedures 1. Rules & Procedures 2. Notebook Setup 3. Lab Safety Rules and signed Flinn Lab Safety Contracts 4. Mandatory Flinn Lab Safety Quiz	2	Lab Safety Contracts, Notebook Setup	Pearson Interactive Textbook Lab Safety Symbols p. 592 **SEP's in the Middle School Flinn Safety Contracts** collect signed contracts, and make a copy for each science notebook. For example, if you do a first and second semester notebook make two copies and have them tape in the back of each notebook (legal purposes per Martha). Mandatory Quiz on Flinn Lab Safety (this link forces you to **make a copy** of the digital quiz) - ALL students must achieve a 70% or higher to participate in labs. Lab Safety Quiz PDF Printable	Simpsons Science Safety Dr. Binoc Lab Safety Lab Safety Rap EdPuzzle: Am. Sisters Lab Safety D Watson: Lab Safety Rap Link: LAB RULES - Dua Lipa "New Rules" Parody Resource for student accountability: Group Work Peer Evaluation Sheet Discovery Education (DE): Lab Safety Board	Why is lab safety important to remember throughout the year in the science classroom? Sample Language Objective:: I can identify lab safety procedures after reading the Safety Contract. Scientific Inquiry through Observations, Graphing, Lab Safety PPT	6.S.1-6.S.8

Week 1: 8/19 - 8/23 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
PRE-ASSESSMENT SEPUP #50 **Weather Effects** Students are introduced to meteorology and look at maps of weather risks. (Q, T, PS, SW, GS)	1	Anemometer, Wind Vane (weather vane), Humidity, Sling psychrometer (hygrometer), Air pressure barometer, Weather maps, Satellite, Thermometer, Radar	Pearson Interactive Textbook Predicting Local Weather pp. 84 - 89	Complete a Teacher-Created Pre-Assessment Ed Puzzle: Weather Tools DE: Weather Data - Interactive Weather Tools	How does weather affect your daily life? Issues and Earth Science student book pg E-8, AQ4 Sample Language Objective:: I can describe the weather risks to my neighborhood by looking at risk maps.	6.S.1A.4 6.S.1A.6 6.E.2B.1
Stations - **Introduction to Weather Tools** (Q, T, PS, SW, GS)	1		After SEPUP #50 this would be an appropriate time to introduce weather tools found in the support guide for 6.E.2B.1	Weather Tools Quiz Quiz Trade Set D Watson: Weather Instruments Stations Data Sheet Relative Humidity Chart Pearson Interactive Textbook Humidity/Sling Psychrometer p. 54	How are weather tools used to predict weather? Sample Language Objective:: I can explain how the six weather instruments work and what they measure using the instruments.	6.S.1A.3 6.E.2B.1

Week 2: 8/26 - 8/30 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #51 **Investigating Local Weather** Students record and analyze five days of local weather data and monthly weather data over the past year. (Q, T, PS, SW, GS)	2	Weather tools Weather vs. Climate	Use online resource to look up daily weather data each day for 5 days. Can do as a class for 4 days, then use day 5 independently as a formative assessment. Example: Students can predict weekend and then discuss results on Monday Introduce qualitative and quantitative observations (6.S.1A.3).	Intro to Meteorology video DE - Intro to Predicting Weather video Weather Underground Access online kit resources at Lab-Aids: Teacher Username: **horry1** Password: **science1** Student Sheet 1 Student Sheet 2 Investigating Weather Performance Task Weather Guided	Students graph monthly weather data. Student book pg. E-11 to E-14 How do qualitative and quantitative observations differ? Sample Language Objective:: I can record the weather conditions daily by using reliable websites. Guded Readings: Predicting Weather EdPuzzle: Weather vs. Climate	6.S.1A.4 6.S.1A.5 6.E.2B.1 6.E.2B.4 6.CS.1.2 6.DA.3.2

Week 2: 8/26 - 8/30 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #53 **Weather and Climate** Students analyze climate maps to identify local climate and compare it to similar areas. **(Q, T, PS, SW, GS)**	1	Weather Climate Temperature Latitude Altitude Topography	This is an appropriate time to introduce how climate can be affected by topography, latitude, and altitude Pearson Interactive Textbook What Causes Climate? pp. 104 - 111	topographical map: US SEPUP # 53 Climate Student Sheet DE: What determines your climate? Exploration	Student book, pg. E-22, AQ4 Predict weather conditions and patterns from data Language Objective:: I can compare the different different climate zones.	6.S.1A.4 6.E.2B.3 6.E.2B.4
Teacher Choice **Assess knowledge of weather tools**	1	6.E.2B.1 All Weather Tools	Assess types of weather tools and how they are used to take measurements that help predict the weather.	Sample Quiz-Quiz-Trade Cards Weather Tools	How is data from different weather tools combined to predict weather?	6.S.1A.3 6.E.2B.1

Week 2: 8/26 - 8/30 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #54 **The Earth's Surface** (Q, T, PS, SW, GS)	1	Mathematical thinking	This lesson has a major focus on SEP's. It is important for students to develop their own procedure for estimating using the world map. Focus discussion on where water is found on Earth - including freshwater sources Student Sheets (pp. 1, 4 - 5)	SEPUP #54 Earth's Surface Student Sheet	Where is most of the water on earth's surface? Sample Language Objective:: I can verbally express where water is found on earth by looking at the infographic.	6.S.1A.5 6.S.1A.6

Week 3: 9/3 - 9/6 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #55 **Heating Earth's Surfaces** (Q, T, PS, SW, GS)	1	Solar energy Radiation Land heats up more quickly than ocean water and cools down more quickly than ocean water.	Advanced Prep - see Lab book (pp. 1 - 8) Have students create a model for radiation, conduction, convection, land/sea breezes *Set up ExploreLearning accounts with students for tomorrow. Conduction, Convection & Radiation Video	SEPUP #55 Sample Data SEPUP #55 Student Sheet 1 SEPUP #55 Student Sheet 2 Pearson Interactive Textbook Heat Transfer pp. 26 - 29 & 168 - 170 Winds pp. 30 - 35 DE: Heat Transmission - Interactive Video	Student Book Quick Check: Q3, pg. E - 29. Explain how the sun's energy heats different surfaces of the earth. Sample Language Objective: I can verbally explain land/sea breezes by using the model of convection. EdPuzzle: Heat Transfer EdPuzzle: Land vs. Sea Breezes and Pictorial	6.S.1A.2 6.S.1A.3 6.S.1A.4 6.E.2B.3 6.E.2B.4
ExploreLearning (Gizmo): **Coastal Winds and Clouds** *Due to the level of difficulty, this Gizmo may be completed "whole class." Alternative: **Land/Sea Breeze video** (Q, T, PS, SW, GS)	1	Distance from water affects climate Land breeze Sea breeze Convection	*Explore Learning (GIZMOs) accounts should be set up prior to today.	Gizmo Student Sheet: Coastal Winds & Clouds (land/sea breezes) Land/Sea Breeze Video Land and Sea Breeze Simulation and data page DE: Heat Go Round - Exploration Interactive	How can measuring temperatures and wind speeds at a location create data to map convection currents that form during the day and night to explain the origin of land breezes and sea breezes? (DOK 3)	6.S.1A.2 6.S.1A.3 6.S.1A.4 6.E.2B.3 6.E.2B.4

Week 3: 9/3 - 9/6 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Teacher Choice **Global & Local winds** **Convection regions** **(Q, T, PS, SW, GS)**	2	6.E.2B.3 Global convection currents, Global winds, Ocean surface currents, Global wind belts 6.E.2B.4 Latitude Elevation Topography Distance from water Winds may be named based on the direction they blow from.	The additional resources can be used in conjunction with Kagan engagement strategies.	Global & Local Winds Mr. Parr Wind Song Wind Quiz Ed Puzzle: Land/Sea Breezes DE - Winds, Currents, and Tides (covers multiple concepts - may want to show clips rather than entire video) Pearson Interactive Textbook Global Wind Belts p. 36	How can measuring temperatures and wind speeds at a location create data to map convection currents that form during the day and night to explain the origin of land breezes and sea breezes? Sample Language Objective: I can infer about the Coriolis Effect from the reading.	6.S.1A.2 6.E.2B.3 6.E.2B.4

Week 4: 9/9 - 9/13 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #56 **Ocean Temperatures** (Q, T, PS, SW, GS)	1	Gulf Stream Climate Hurricanes Trade Winds Temperature Isotherm Latitude	Use a completed ocean temperature map instead of having students color the world map. The focus should be on analyzing the map for patterns and evidence for why hurricanes are generated at a certain latitude.	Sample Ocean Temp. Map Ocean Temp. Questions Pearson Interactive Textbook Ocean Currents p. 109 DE: Create a hurricane Interactive DE: How hurricanes form and their effects - Techbook	Pair Share: Explain why hurricanes form over the ocean with water temps above 26.5□C. Sample Language Objective:: I can make connections between different the temperatures in the oceans and climate.	6.S.1A.2 6.S.1A.6 6.E.2B.2 6.E.2B.3 6.E.2B.4
SEPUP #57 **Oceans and Climate** (Q, T, PS, SW, GS)	1	California Current Gulf Stream Distance from Water Latitude	SEPUP #57 Student Sheet	Pearson Interactive Textbook What Causes Climate? pp. 104 - 108 Ed Puzzles: Ocean Currents DE: Oceans: Temperature and Climate Regulation	How do ocean temperatures affect climate? Student book pg. E - 42, AQ3	6.S.1A.2 6.E.2B.3
SEPUP #58 **The Causes of Climate** (Q, T, PS, SW, GS)	1	Latitude Elevation Topography Distance from Water Solar energy Radiation Ocean Currents	SEPUP #58 Student Sheet	EdPuzzle: Causes of Climate DE: Our climate in the long run - Interactive	What three factors affect climate? Student Ed. p. E - 48, Analysis question 4 Sample Language Objective: I can identify the three factors that affect climate by reading *The Causes of Climate*.	6.S.1A.2 6.S.1A.6 6.E.2B.3 6.E.2B.4

Week 4: 9/9 - 9/13 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Review Teacher Created Mini-assessment	1	The following indicators should be thoroughly covered: 6.E.2B.3 6.E.2B.4 Hurricanes Weather tools	Supplement using additional resources to include cloud types after discussing the changing states of water.	USATestprep Discovery Ed Assessments Performance Matters Weather Guided Readings: Precipitation & Water in Atmosphere	What factors affect weather and climate?	6.S.1A.2 6.S.1A.6 6.E.2B.3 6.E.2B.4
SEPUP #60 **Water Changes State** Students learn how water changes from one phase to another. Teacher models changes in the state of water and the water cycle. **(Q, T, PS, SW, GS)**	1	Solid Liquid Gas/water vapor Clouds Condensation evaporation water cycle	Supplement using additional resources to include cloud types after discussing the changing states of water.	Pearson Interactive Textbook Water in the Atmosphere pp. 52 - 53 Clouds pp. 56 - 59 Precipitation pp. 60 - 63 Ed Puzzle: Water Cycle DE: Water Cycle - Board DE: Water Cycle - Interactive DE: Thermal energy and the water cycle - Reading passage	How does water change states in the water cycle? Sample Language Objective:: I can describe how water changes states with a partner.	6.S.1A.6 6.E.2A.3

Week 5: 9/16 - 9/20 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #61 I**nvestigating Groundwater** or ExploreLearning (Gizmo): **Porosity** **(Q, T, PS, SW, GS)**	1	Groundwater flow, Infiltration, Porous, Precipitation, Gravity	ExploreLearning (Gizmo): Porosity Student Sheet	Groundwater Animated Video Groundwater for Kids **DE: Groundwater - Interactive**	How does water interact with earth materials? Sample Language Objective:: I can explain the porosity of different types of soil with lab results.	6.S.1A.6 6.E.2A.3
SEPUP #62 **Traveling on the Water Cycle** Use a board game and literacy strategies to investigate conversion of water from one form to another. **(Q, T, PS, SW, GS)**	1	Water cycle Radiation, gravity, Evaporation Transpiration Condensation, Precipitation, Surface runoff, Collection Thermosphere	This would be an appropriate time to review indicator 6.E.2A.3 to ensure all components of the water cycle have been covered and assess student knowledge.	Study Jams: the Water Cycle D Watson: Water Cycle Rap Frost and Dew Activity Alternative Lab Sheet	Draw and label the different processes of the water cycle. How does water circulate through earth's crust, oceans and atmosphere?	6.S.1A.6 6.E.2A.3 6.AP.1.1

Week 5: 9/16 - 9/20 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #63 **Investigating Air** Students explore the nature of air by making observations of air pressure and by using a chemical indicator. (Q, T, PS, SW, GS)	1	Carbon Dioxide Oxygen Water vapor Nitrogen Argon Trace Gases Volcanoes Atmosphere	Safety goggles Test Bromothymol blue solution beforehand. Copy Student Sheets (E-149, E-151) from the SEPUP Focus discuss on the impact of different gases on the atmosphere such as how a volcano eruption or human action can affect climate by contributing to the amount of greenhouse gases in atmosphere.	Pearson Interactive Textbook Volcanoes Affect Climate p. 127 Weather Guided Readings: Air Pressure DE: Relationship between greenhouse effect and atmosphere - Reading passage	What evidence can you provide to prove that air is a substance?	6.S.1A.2 6.S.1A.7 6.E.2A.1 6.E.2A.2

Week 5: 9/16 - 9/20 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #64 **Earth's Atmosphere** or Teacher Choice to cover the dynamics of Earth's atmosphere (Q, T, PS, SW, GS)	1	Atmospheric composition, Altitude, Temperature, Pressure	Analysis questions should be included even if using teacher choice materials. Sample of mean atmospheric values can be used from SEPUP teacher's ed p. E - 157 Also use p. E - 163 for students to analyze temperature and air pressure patterns in the atmosphere.	Study Jams- Earth's Atmosphere Layers of the Atmosphere student WS Teacher WS key DE: The air up there - Interactive DE: Layers of the Atmosphere - Board Weather Guided Readings: Layers of the Atmosphere	How does the earth's atmosphere change at different elevations from the earth's surface? Sample Language Objective:: I can describe the differences between the different layers of the atmosphere.	6.S.1A.2 6.E.2A.1
SEPUP #65 **History of Earth's Atmosphere** (Q, T, PS, SW, GS)	1	Atmospheric composition, Greenhouse Effect, Volcanoes, Human activities	Follow procedures 1 - 4. Have students answer analysis questions 1 - 3 using the sorted cards.	D Watson: Layers of the Atmosphere Rap Pearson Interactive Textbook Layers of the Atmosphere pp. 15 - 19 Energy in Earth's Atmosphere pp. 20 - 25 DE: Greenhouse effect - skillbuilder	Has the earth's atmosphere always been the same as it is today? Sample Language Objective:: I can collect data on the atmosphere through history by using cards.	6.S.1A.2 6.E.2A.1

Week 6: 9/23 - 9/27 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #66 **Atmosphere and Climate** (Q, T, PS, SW, GS)	2	Atmospheric layers, Troposphere, Stratosphere (ozone), Mesosphere, Thermosphere, Exosphere, Cloud types: Cirrus Cumulus Stratus Cumulonimbus	Analyze the impact of human activity on the composition of the atmosphere.	Study Jams- Weather and Climate Cloud Activity Cloud Study Guide Hawaiian Volcano Video Clip DE: Human impact video DE: Greenhouse Effect - board	What role does atmosphere play in weather and climate? Sample Language Objective: I can predict that you think will happen to the area you live in as a result of global climate.	6.S.1A.7 6.S.1A.4 6.E.2A.2 6.E.2B.1
SEPUP #67 **Measuring Wind Speed and Direction** or ExploreLearning (Gizmo): **Observing Weather** (activities A-C) (Q, T, PS, SW, GS)	2	Anemometer Barometer Hygrometer Sling psychrometer Thermometer Rain gauge Wind vane Fog Thunderstorm Latitude	Review essential knowledge related to weather tools. Weather Forecasting Game can be used on Google Classroom over the next few days for early finishers.	Analyzing Weather Maps Gizmo Student Sheet Weather Forecasting Game Pearson Interactive Textbook Measuring Wind p. 32	Procedure: DI pg. E-180 What do all wind instruments have in common? Sample Language Objective:: I can explain how an anemometer and wind vane work using the model	6.S.1A.4 6.S.1A.7 6.E.2B.1

Week 6: 9/23 - 9/27 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #68 **Worldwide Wind** (Q, T, PS, SW, GS) *Continued in Week 7	1	Convection, Global Winds, Trade winds Prevailing westerlies, Polar easterlies Coriolis Effect, Jet Stream	Copy Key to Wind Currents on Earth in TeachEd. p. E - 195. Students use a real compass to label wind direction for the 3 global wind patterns and identify which convection current they are in. Students also answer analysis questions p. E - 86. Directions for modeling the Coriolis Effect can be changed to teacher demo.	Pearson Interactive Textbook Global Winds pp. 34 - 37 Weather Guided Readings: Winds Model the Coriolis Effect DE: What drives global winds and ocean currents?	What is the pattern of prevailing winds on different parts of the earth? Sample Language Objective:: I can compare and contrast the different types of winds with a partner.	6.S.1A.6 6.S.1A.7 6.E.2B.3

Week 7: 9/30 - 10/4 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
SEPUP #68 **Worldwide Wind** (Q, T, PS, SW, GS) *Continued from Week 6	1	Global Winds, Coriolis Effect, Jet Stream	Copy Key to Wind Currents on Earth in Teach Ed. p. E - 195. Use a real compass to label wind direction for the 3 global wind patterns and identify which convection current they are in. Students also answer analysis questions p. E - 86. Directions for modeling the Coriolis Effect can be changed to teacher demo.	Pearson Interactive Textbook Global Winds pp. 34 - 37 Model the Coriolis Effect	Describe the pattern of prevailing winds on different parts of the earth?	6.S.1A.6 6.S.1A.7 6.E.2B.3
Air Masses, Pressure Systems & Fronts Summarize the relationship of the movement of air masses; high/low pressure systems, & frontal boundaries to storms and other weather conditions. (Q, T, SW)	2	Air Masses, Weather Fronts, High/Low pressure system	Teacher Choice Pearson Interactive Textbook Air Masses pp. 66 - 73	Air Mass WS EdPuzzle: Fronts DE: Air masses affect on weather - Interactive DE: Make it rain - Interactive	How do interactions of air masses, high and low pressure systems, and frontal boundaries result in weather conditions and storms?	6.S.1A.2 6.E.2B.2

Week 7: 9/30 - 10/4 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Review Teacher Created Mini-Assessment	1	These should be thoroughly covered: 6.E.2A.1 6.E.2A.2 6.E.2A.3 6.E.2B.2		USATestprep Discovery Ed Assessments	Teacher Created	6.E.2B.1 6.E.2B.2 6.E.2B.3 6.E.2A.1 6.E.2A.2 6.E.2A.3
SEPUP #69 **Forecasting Weather** (Q, T, PS, SW, GS)	1	Weather maps Isobars Isotherms Weather Fronts High/Low Pressure Systems	Pearson Interactive Textbook Local Weather (interpret a weather map) pp. 90 - 91	Weather Map WS DE: Meteorology - Techbook DE: Weather Forecasting DE: Meteorology - Activity	What information is found on a weather map? How can a weather map be used to forecast weather? Sample Language Objective:: I can write a weather report based on a weather map with a partner.	6.S.1A.2 6.E.2B.2

Week 8: 10/7 - 10/11 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Weather Blended Learning Lesson: Analyze data on a weather map (Q, T, PS, SW, GS)	2	Weather maps	Weather Blended Learning Lesson: Analyze data on a weather map	How Lightning and Static Electricity Form	How can I combine my weather knowledge to predict the weather?	6.S.1A.4 6.E.2B.1 6.DA.2.1
Student Created Weather Maps **Student Presentations** (Q, T, PS, SW, GS)	2	All concepts contained in the Weather Unit	Group Work Peer Evaluation Sheet	Collaboration & Creation (Infographic) This is day 1 of a 2 day activity DE: Science Lab Weather - Skill Builder	How can I combine my weather knowledge to predict the weather?	All Weather indicators
Weather Unit Review/ Common Assessment/Reteach (Q, T, PS, SW)	1	All concepts contained in the Weather Unit	Highly suggested to use data to create small groups to drive the review process. A teacher small group should be used along with a variety of review methods to engage students.	Collaboration & Creation (Infographic) This is day 2 of a 2 day activity DE: Weather Patterns - Interactive DE: Weather, Seasons, Climate - Interactive video DE: Climate Change - Interactive video	How can I combine my weather knowledge to predict the weather?	All weather indicators

Week 9: 10/16 - 10/18 Weather

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Weather Unit Review/ Common Assessment/Reteach (Q, T, PS, SW)	2	All concepts contained in the Weather Unit	Highly suggested to use data to create small groups to drive the review process. A teacher small group should be used along with a variety of review methods to engage students.	USATestprep Discovery Ed Assessments Performance Matters	How can I combine my weather knowledge to predict the weather?	All weather indicators
Weather Unit Review/ Common Assessment Reteach (Q, T, PS, SW)	1	All concepts contained in the Weather Unit	Highly suggested to use data to create small groups to drive the review process. A teacher small group should be used along with a variety of review methods to engage students.	USATestprep Discovery Ed Assessments Performance Matters	How can I combine my weather knowledge to predict the weather?	All weather indicators

Subject - Unit 2 - Energy

Teaching Dates: 10-21/12-20	Common Assessment Window: 12/16/19- 12/20/19

Standards: 6.P.3 *Support Document pages 29-51*

Conceptual Understandings: *(Google Site to explain the SEP's)*

SEP Performance Indicators:
6.S.1 The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.
6.S.1A Conceptual Understanding: The practices of science and engineering support the development of science concepts, develop the habits of mind that are necessary for scientific thinking, and allow students to engage in science in ways that are similar to those used by scientists and engineers.
6.S.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims.

Tested SEP Indicators within this unit:
6.S.1A.2 Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others.
6.S.1A.3 Plan and conduct controlled scientific investigations to answer questions, test hypotheses, and develop explanations: (1) formulate scientific questions and testable hypotheses, (2) identify materials, procedures, and variables, (3) select and use appropriate tools or instruments to collect qualitative and quantitative data, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.
6.S.1A.4 Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs.
6.S.1A.5 Use mathematical and computational thinking to (1) use and manipulate appropriate metric units, (2) collect and analyze data, (3) express relationships between variables for models and investigations, or (4) use grade-level appropriate statistics to analyze data.

6.S.1A.6 Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams.
6.S.1A.7 Construct and analyze scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.
6.S.1A.8 Obtain and evaluate scientific information to (1) answer questions, (2) explain or describe phenomena, (3) develop models, (4) evaluate hypotheses, explanations, claims, or designs or (5) identify and/or fill gaps in knowledge. Communicate using the conventions and expectations of scientific writing or oral presentations by (1) evaluating grade-appropriate primary or secondary scientific literature, or (2) reporting the results of student experimental investigations.

Continued on next page

Subject - Unit 2 - Energy

Teaching Dates: 10/21/19- 12/20/19	Common Assessment Window: 12/16- 12/20

Standards: 6.P.3 *Support Document pages 29-51*

Conceptual Understandings: *(Google Site to explain the SEP's)*

Performance Indicators:
6.S.1B Conceptual Understanding: Technology is any modification to the natural world created to fulfill the wants and needs of humans. The engineering design process involves a series of iterative steps used to solve a problem and often leads to the development of a new or improved technology.

Tested SEP Indicators within this unit:
6.S.1B.1 Construct devices or design solutions using scientific knowledge to solve specific problems or needs: (1) ask questions to identify problems or 2 needs, (2) ask questions about the criteria and constraints of the device or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

Energy Performance Indicators:
6.P.3 The student will demonstrate an understanding of the properties of energy, the transfer and conservation of energy, and the relationship between energy and forces.
6.P.3A Conceptual Understanding: Energy manifests itself in multiple forms, such as mechanical (kinetic energy and potential energy), electrical, chemical, radiant (solar), and thermal energy. According to the principle of conservation of energy, energy cannot be created nor destroyed, but it can be transferred from one place to another and transformed between systems.
6.P.3A.1 Analyze and interpret data to describe the properties and compare sources of different forms of energy (including mechanical, electrical, chemical, radiant, and thermal).
6.P.3A.2 Develop and use models to exemplify the conservation of energy as it is transformed from kinetic to potential (gravitational and elastic) and vice versa.
6.P.3A.3 Construct explanations for how energy is conserved as it is transferred and transformed in electrical circuits.
6.P.3A.4 Develop and use models to exemplify how magnetic fields produced by electrical energy flow in a circuit is interrelated in electromagnets, generators, and simple electrical motors.
6.P.3A.5 Develop and use models to describe and compare the directional transfer of heat through convection, radiation, and conduction.
6.P.3A.6 Design and test devices that minimize or maximize heat transfer by conduction, convection, or radiation.

Continued on next page

Subject - Unit 2 - Energy

Teaching Dates: 10/21/19- 12/20/19	Common Assessment Window: 12/16- 12/20

Standards: 6.P.3 *Support Document pages 29-51*

Conceptual Understandings: (*Google Site to explain the SEP's*)

Energy Performance Indicators:

6.P.3B Conceptual Understanding: Energy transfer occurs when two objects interact thereby exerting force on each other. It is the property of an object or a system that enables it to do work (force moving an object over a distance). Machines are governed by this application of energy, work, and conservation of energy.

6.P.3B.1 Plan and conduct controlled scientific investigations to provide evidence for how the design of simple machines (including levers, pulleys, inclined planes) helps transfer mechanical energy by reducing the amount of force required to do work.

6.P.3B.2 Design and test solutions that improve the efficiency of a machine by reducing the input energy (effort) or the amount of energy transferred to the surrounding environment as it moves an object.

Week 10: 10/21 - 10/25 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Energy Pre-Assessment (Q, T, PS, SW, GS)	1	Assess Prior Knowledge	List of K'Nex to Make K'Nex Kits per group (suggestion to put the kit in 8 pencil boxes for easy distribution)	USATestprep Discovery Ed Assessments	What do I already know about Energy?	All indicators
Introduce One Step Dimensional Analysis (Q, T, PS, SW, GS)	1	One-step Conversion Units of measurement Dimensional analysis	Dimensional Analysis Intro Book **Lesson 1** **Lesson 2** **Lesson 3** **Lesson 4** *Expectation - complete one per quarter.	Dimentional Analysis Step by Step DE: Measurement - Board D Watson: Dry Mix Rap D Watson: Types of Variables	How can I change one unit of measurement to another unit of measurement using math processes?	6.S.1A.5
COE Activity 1.1 Mechanical Energy Page 17 COE Teacher Book (Q, T, PS, SW, GS)	3	To argue from evidence that energy exists. Mechanical Energy (Potential/ Kinetic)	*Santee Cooper Student Team Handbook PDF See Teacher's Guide Binder p. 18 Team Handbook (student book) p. 3 Teacher Challenges 1-2 PPT Teacher Challenges 3-4 PPT	Gizmo- Potential Energy on Shelves www.explorelearning.com DE: Energy types and transformations - video (good intro) EdPuzzle: Law of Conservation of Energy and Chant	What is energy? How does gravitational potential energy change to kinetic energy? Sample Language Objective:: I can orally explain how gravitational potential energy changes to kinetic energy.	6.S.1A.2 6.S.1A.7 6.P.3A.1

Week 11: 10/28 - 11/1 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 1.2 Mechanical Energy and Work Page 29 COE Teacher Book (Q, T, PS, SW, GS)	2	transformation between potential and kinetic energy Controlled experiments and graphing.	See Teacher's Guide p. 30 Team Handbook (student book) p. 5 Teacher Challenges 1-2 PPT Video to Wind Rubber Band on Car	Video Questions Video Questions-Key D Watson: Work Rap DE: Two energy types - Board	How can elastic energy be stored and how will it affect the amount of kinetic energy that is released?	6.S.1A.2 6.S.1A.4 6.P.3A.1 6.P.3A.2 6.AP.5.1 6.AP.5.2
Activity 1.3 Inclined Planes Page 43 COE Teacher Book (Q, T, PS, SW, GS)	1	How inclined planes reduce the force needed to do work. ***Effort force*** is reduced by a simple machine. ***Efficiency*** is reducing heat loss to the environment in a simple machine (due to friction).	See Teacher's Guide p. 42 Team Handbook (student book) p. 8 Teacher Challenges 1-2 PPT	Measuring Forces Using a Spring Scale Video Gizmo- Inclined Plane- Simple Machines www.explorelearning.com DE: Getting to know inclined plane - Reading Pearson Interactive Textbook Inclined Planes pp. 198 - 199 DE: Six Simple Machines - Interactive Video EdPuzzle: Inclined Planes	How much force does it take to lift an object? How does an inclined plane reduce the force needed to lift an object? Sample Language Objective:: I can describe how an inclined plane reduces the force needed to move an object using an inclined plane.	6.S.1A.3 6.S.1A.4 6.P.3A.1 6.P.3B.1

Week 11: 10/28 - 11/1 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 1.4 Levers Page 63 Teacher Book (Q, T, PS, SW, GS)	1	Using levers to decrease the amount of force needed for work	Teacher's Guide "Copy of Print Manual" p. 64 Student Book "Energy Investigation Team Handbook" p. 11 Teacher Challenges 1-2 PPT	Gizmo- Levers www.explorelearning.com Pearson Interactive Textbook Levers pp. 202 - 205 DE: Lever Ups and Downs - exploration	How can a lever reduce the force needed to lift a weight? Sample Language Objective:: I can summarize how a lever reduces the force needed to move an object using a lever.	6.S.1A.3 6.S.1A.4 6.P.3A.1 6.P.3B.1
COE Activity 1.5 Pulleys Page 77 Teacher Book (Q, T, PS, SW, GS)	1	Using pulleys to decrease the amount of force needed for work	Teacher's Guide" Copy of Print Manual" p. 78 Student Book "Energy Investigation Team Handbook" p. 17 Teacher Challenges 1-2 PPT	Gizmo- Pulleys www.explorelearning.com Pearson Interactive Textbook Pulleys pp. 206 - 208 DE: Pulleys at Work - Exploration EdPuzzle: More About Pulleys	How can a pulley decrease the force needed to lift a weight? Sample Language Objective:: I can explain how a pulley reduces the force needed to move an object using a pulley.	6.S.1A.3 6.S.1A.4 6.P.3A.1 6.P.3B.1

Week 12: 11/4 - 11/8 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 1.6 Machines and Tools Page 95 Teacher Book (Q, T, PS, SW, GS)	1	Simple and Compound Machines	Teacher's Guide "Copy of Print Manual" p. 94 Student Book "Energy Investigation Team Handbook " p. 26 Teacher Challenges 1-2 PPT	Study Jams: Simple Machines Engineering Design Process DE: Simple Machines - Reading passage DE: Complex Machines - Reading passage	How can we change machines to reduce the amount of force needed to do work even more than with a simple machine? *Discuss compound machines as combinations of simple machines. Ex: scissors=2 wedges (blades) around a fulcrum making the handles levers.	6.P.3B.2 6.P.3B.1
COE Activity 1.7 Design and Efficiency Page 101 Teacher Book (Q, T, PS, SW)	1	Mechanical Efficiency (p.50 of support guide- under Note to Teacher) In teaching friction use the phrase "heat lost to the environment."	Teacher's Guide "Copy of Print Manual" p. 102 Student Book "Energy Investigation Team Handbook p. 29 **Teach FxD=W w/o friction and then efficiency with regards to friction (support guide is incorrect)** Teacher Challenges 1-2 PPT	Engineering Design Process DE: Energy Efficiency and Friction - video segment DE: Efficiency of Machines - video segment	What happens to the energy that you put into a simple machine? Sample Language Objective:: I can identify that energy is not lost, but turned to heat energy (friction) with a partner.	6.P.3B.2 6.P.3B.1 6.1CS.1.1

Week 12: 11/4 - 11/8 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Assessment of Simple Machines (Assessment p. 10) (Q, T, PS, SW)	1	Conservation of Energy	Assessment Strategies p. 10 Teacher's Guide Teacher Challenges 1-2 PPT	Performance Matters	What are types of simple machines and how do they help humans do work more efficiently and with less effort?	6.S.1A.3 6.P.3B.1 6.NI.1.3
COE Activity 2.1 Ice Cube Race p. 115 (Q, T, PS, SW)	1	Thermal energy and heat transfer	Teacher's Guide"Copy of Print Manual" p. 116 Student Book "Energy Investigation Team Handbook p. 33 Teacher Challenges 1-2 PPT	Gizmo - Energy Conversions DE: Energy Conversion - Activity DE: Conservation of Energy - reading passage DE - Transfer and Conservation of Energy - Reading Passage	Explain the process of how/why ice melts. Sample Language Objective:: I can express the heat transfer in the ice cube based on this activity.	6.S.1A.1 6.S.1A.2 6.P.3A.5
COE Activity 2.2 Water Dance p. 121 Teacher Book (Q, PS, SW)	1	Modeling Thermal energy and heat transfer	Teacher's Guide "Copy of Print Manual" p. 122 Pearson Interactive Textbook Temperature, Thermal Energy, and Heat pp. 164 - 167 Teacher Challenges 1-2 PPT	DE: Thermal Energy Transfer - Board DE: Heat is Happening - Reading passage	Describe what happens when heat energy is transferred to water.	6.S.1A.2 6.P.3A.5

Week 13: 11/11 - 11/15 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 2.3 Heat Transfer by Conduction Page 129 Teacher Book (Q, T, PS, SW, GS)	2	Modeling heat transfer by conduction	Teacher's Guide "Copy of Print Manual" p. 130 Student Book "Energy Investigation Team Handbook" p. 34 Teacher Challenges 1-2 PPT	DE: Too hot to handle - Virtual Lab DE: Getting to Know Conduction - reading passage DE: Touching story of heat conduction - reading passage	Describe heat transfer by conduction. Sample Language Objective:: I can distinguish the difference between a conductor and an insulator with a partner.	6.S.1A.2 6.S.1A.3 6.S.1A.4 6.P.3A.1 6.P.3A.5
COE Activity 2.4 Heat Transfer by Radiation Page 147 Teacher Book (Q, T, PS, SW, GS) *Continued from Week 13	1	Heat transfer by radiation	Teacher's Guide "Copy of Print Manual" p. 148 Student Book "Energy Investigation Team Handbook" p. 38 Teacher Challenges 1-2 PPT	USATestprep DE: Melt Off - Exploration DE: Getting to know radiation - Reading passage	Describe heat transfer by radiation. Sample Language Objective:: I can explain that water and land heat at different rates using data from experiment.	6.S.1A.2 6.S.1A.3 6.S.1A.4 6.P.3A.1 6.P.3A.5
COE Activity 2.5 Rain Maker (Solar Still) Page 159 Teacher Book (Q, T, PS, SW, GS)	1	Heat transfer by radiation	Teacher's Guide Copy of Print Manual" p. 160 Student Book "Energy Investigation Team Handbook" p. 40 Teacher Challenges 1-2 PPT	USATestprep	What happens in a solar still?	6.S.1A.2 6.S.1A.3 6.S.1A.6 6.P.3A.5 6.E.2A.3

Week 13: 11/11 - 11/15 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 2.6 Heat Transfer by Convection Page 167 Teacher Book (Q, T, SW)	1	Modeling heat transfer by convection	Teacher's Guide "Copy of Print Manual" p. 168 Student Book "Energy Investigation Team Handbook" p. 42 Teacher Challenges 1-2 PPT	USATestprep DE: Heat Go Round - Exploration DE: Convection - Image DE: Getting to know convection - Reading passage	Describe or illustrate heat transfer by convection. Sample Language Objective:: I can describe how hot liquid/gases react differently than cold liquid/gases based on the experiment.	6.S.1A.2 6.P.3A.5 6.E.2B.3

Week 14: 11/18 - 11/22 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 2.7 Save the Cube Page 183 Teacher Book (Q, T, PS, SW, GS)	2	Engineering design and heat transfer	Teacher's Guide "Copy of Print Manual" p. 184 Student Book "Energy Investigation Team Handbook" p. 45 Teacher Challenges 1-2 PPT	Pearson Interactive Textbook The Transfer of Heat pp. 168 - 171 D Watson: Heat Transfer Rap DE: Heat Transmission - Interactive video DE: Heat in the home - reading passage	How can we keep ice from melting? Sample Language Objective:: I can express why I used the materials that I used to keep the ice from melting in the experiment.	6.S.1B.1 6.P.3A.6 6.NI.1.3
Review/Assessment (Assessment page 15) (Q, PS, SW)	1	Types of heat transfer	Assessment Strategies Appendix 1 pg 15 Appendix starts on p. 347 Teacher Challenges 1-2 PPT	Performance Matters	Assessment	6.P.3A.5 6.E.2A.3 6.P.3A.6
COE Activity 3.1 Electric Circuits Page 189 Teacher Book (Q, T, PS, SW, GS)	2	Energy transformations in electric circuits	Teacher's Guide "Copy of Print Manual" p. 190 Student Book "Energy Investigation Team Handbook" p. 46 Teacher Challenges 1-2 PPT	USATestprep DE: Exploring Circuits - Reading passage DE: Getting connected - Virtual Lab	What is a complete circuit? How can energy be transformed in an electric circuit?	6.S.1A.6 6.P.3A.3

Week 15: 11/25 - 11/26 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Dimensional Analysis	2	One-step conversion units of measurement Dimensional analysis	Dimensional Analysis Intro Book Lesson 1 Lesson 2 Lesson 3 Lesson 4 *Expectation - complete one per quarter. Teacher Challenges 3-4 PPT	Step by Step Dimensional Analysis	How can I change one unit of measurement to another unit of measurement using math processes?	6.S.1A.5

Week 16: 12/2 - 12/6 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 3.2 Sources of Electric Energy Page 203 Teacher Book (Q, PS, SW)	1	Sources of electric energy	Teacher's Guide "Copy of Print Manual" p. 204 Student Book "Energy Investigation Team Handbook" p. 48 Teacher Challenges 3-4 PPT	DE: Energy from hydroelectric dams DE: Production and storage of electricity - Techbook D Watson: Energy Rap	How can electric energy be produced? Sample Language Objective:: I can identify devices that transform energy with a partner.	6.S.1A.6 6.S.1A.4 6.S.1A.2 6.P.3A.1 6.P.3A.3 6.P.3A.4
COE Activity 3.3 Electricity and Magnetism Page 215 Teacher Book (Q, T, PS, SW, GS)	2	Magnetic fields and electromagnetism	Teacher's Guide "Copy of Print Manual" p. 216 Student Book "Energy Investigation Team Handbook" p. 52 Teacher Challenges 3-4 PPT	DE: Electricity and magnetism - Techbook DE: Electricity - Electromagnet simulation DE: Magnetism - Interactive video D Watson: Magnets Rap	How would you describe a magnetic field? How are magnetism and electricity related?	6.S.1A.2 6.P.3A.4
COE Activity 3.4 Electric Motors Page 231 Teacher Book (Q, T, PS, SW, GS)	1	electric motors	Teacher's Guide "Copy of Print Manual" p. 232 Student Book "Energy Investigation Team Handbook" p. 55 Teacher Challenges 3-4 PPT	Pearson Interactive Textbook Electricity, Magnetism, and Motion (Electric Motors) pp. 280 - 285 DE: The electric motor - reading passage	How does an electric motor transform electric energy to mechanical energy? Sample Language Objective:: I can illustrate the energy transfer in an electric motor with a partner.	6.S.1A.2 6.P.3A.4

Week 16: 12/2 - 12/6 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 3.5 Electric Generators Page 241 Teacher Book (Q, T, PS, SW, GS)	1	How generators produce electricity	Teacher's Guide "Copy of Print Manual" p. 242 Team Handbook "Energy Investigation Team Handbook" p. 60 Teacher Challenges 3-4 PPT	DE: Energy from hydroelectric dams DE: Production and storage of electricity - Techbook EdPuzzle: Motors and Generators	How can you transform mechanical energy into electric energy? Sample Language Objective:: I can illustrate the energy transfer in a generator with a partner.	6.S.1A.2 6.P.3A.4

Week 17: 12/9 - 12/13 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
COE Activity 3.5 Electric Generators Page 241 Teacher Book (Q, T, PS, SW, GS)	1	How generators produce electricity	Teacher's Guide"Copy of Print Manual" p. 242 Student Book "Energy Investigation Team Handbook" p. 60 Teacher Challenges 3-4 PPT		How can you transform mechanical energy into electric energy?	6.S.1A.2 6.P.3A.4
COE Activity 3.6 Electric Power Plants Page 253 Teacher Book (Q,T,PS,SW,GS)	1	how power plants transform mechanical energy to electric energy	Teacher's Guide "Copy of Print Manual" p. 254 Student Book "Energy Investigation Team Handbook" p. 63 Teacher Challenges 3-4 PPT	D Watson: Energy Transformations Energy Transformation WS Answer Key Pearson Interactive Textbook - Design Process pp. 590 - 591 DE: Energy Storage and Transport - Techbook	What are some of the ways that electric power plants produce electric energy? Sample Language Objective:: I can predict how a turbine works in a power plant with a partner.	6.S.1A.2 6.P.3A.4
Assessment of Challenge 3 - Energy Transformations	1	Generator Motor Energy transformation	Assessment Strategies Appendix 1 pg 19 Appendix starts on p. 347 Teacher Challenges 3-4 PPT	USATestprep	Assessment	6.P.3A.1 6.P.3A.3 6.P.3A.4
Solar Car Derby	2	apply the engineering design process	Alternative Energy Performance Task 💡💻			6.DL.1.2💻 6.DA.2.1💻 6.IC.1.1💻

Week 18: 12/16 - 12/20 Energy

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Solar Car Derby	1	apply the engineering design process	Alternative Energy Performance Task 💡💻			6.DL.1.2💻 6.DA.2.1💻 6.IC.1.1💻
Energy Unit Review/ Common Assessment/Reteach **(Q, GS, T, PS, SW)**	2	Review and Assess	**Highly suggested to use data to create small groups to drive the review process. A teacher small group should be used along with a variety of review methods to engage students.**	Performance Matters DE: Work, Energy, and Machines - video overview DE: Five Forms of Energy - Interactive video	What do I need to review about energy to prepare for the assessment?	All energy standards
Energy Unit Review/ Common Assessment/Reteach **(Q, PS, SW)**	1	Review and Assess	Teacher Challenges 3-4 PPT	Performance Matters	What do I still need help with after completing the energy assessment?	All energy standards
Energy Unit Review/ Common Assessment/Reteach **(Q, PS, SW)**	1	Review and Assess	USA test prep is an excellent resource that can be used to target the needs of individual students based on their common assessment results	USATestprep evaluation rubric	What do I still need help with after completing the energy assessment?	All energy standards

Subject - Unit 3 - Protist, Fungi & Plants

Teaching Dates: 01/06/20- 03/06/20	Common Assessment Window: 03/02/20- 03/06/20

Standards:6.L.5 *Support Document pages 70-86*

Conceptual Understandings: (*Google Site to explain the SEP's*)

SEP Performance Indicators:
6.S.1 The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.
6.S.1A Conceptual Understanding: The practices of science and engineering support the development of science concepts, develop the habits of mind that are necessary for scientific thinking, and allow students to engage in science in ways that are similar to those used by scientists and engineers.

Tested SEP Indicators within this unit:
6.S.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims.
6.S.1A.2 Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others.
6.S.1A.3 Plan and conduct controlled scientific investigations to answer questions, test hypotheses, and develop explanations: (1) formulate scientific questions and testable hypotheses, (2) identify materials, procedures, and variables, (3) select and use appropriate tools or instruments to collect qualitative and quantitative data, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.

6.S.1A.4 Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs.
6.S.1A.5 Use mathematical and computational thinking to (1) use and manipulate appropriate metric units, (2) collect and analyze data, (3) express relationships between variables for models and investigations, or (4) use grade-level appropriate statistics to analyze data.
6.S.1A.6 Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams.

Tested SEP Indicators within this unit:
6.S.1A.7 Construct and analyze scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.

Continued on next page

Subject - Unit 3 - Protist, Fungi & Plants

Teaching Dates: 01/06/20- 03/06/20	Common Assessment Window: 03/02/20- 03/06/20

Standards: 6.L.5 *Support Document pages 70-86*

Conceptual Understandings: (*Google Site to explain the SEP's*)

Performance Indicators:
6.S.1A.8 Obtain and evaluate scientific information to (1) answer questions, (2) explain or describe phenomena, (3) develop models, (4) evaluate hypotheses, explanations, claims, or designs or (5) identify and/or fill gaps in knowledge. Communicate using the conventions and expectations of scientific writing or oral presentations by (1) evaluating grade-appropriate primary or secondary scientific literature, or (2) reporting the results of student experimental investigations.
6.S.1B Conceptual Understanding: Technology is any modification to the natural world created to fulfill the wants and needs of humans. The engineering design process involves a series of iterative steps used to solve a problem and often leads to the development of a new or improved technology.

Tested SEP Indicators within this unit:
6.S.1B.1 Construct devices or design solutions using scientific knowledge to solve specific problems or needs: (1) ask questions to identify problems or 2 needs, (2) ask questions about the criteria and constraints of the device or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

Protist, Fungi & Plants Performance Indicators:
6.L.5A. Conceptual Understanding: The Protist Kingdom is one of the most diverse groups and includes organisms that have characteristics similar to but are not classified as plants, animals, or fungi. These microorganisms live in moist environments and vary in how they obtain energy and move. The Fungi Kingdom consists of organisms that do not make their own food (heterotrophs) but obtain their nutrition through external absorption. Fungi can be grouped by their growth habit or fruiting structure and respond to changes in the environmental stimuli similar to plants.
6.L.5A.1 Analyze and interpret data from observations to compare how the structures of protists (including euglena, paramecium, and amoeba) and fungi allow them to obtain energy and explore their environment.
6.L.5A.2 Analyze and interpret data to describe how fungi respond to external stimuli (including temperature, light, touch, water, and gravity).
6.L.5B. Conceptual Understanding: The Plant Kingdom consists of organisms that primarily make their own food (autotrophs) and are commonly classified based on internal structures that function in the transport of food and water. Plants have structural and behavioral adaptations that increase the chances of reproduction and survival in changing environments.

Continued on next page

Subject - Unit 3 - Protist, Fungi & Plants

Teaching Dates: 01/06/20- 03/06/20	Common Assessment Window: 03/02/20- 03/06/20

Standards: 6.L.5 *Support Document pages 70-86*

Conceptual Understandings: (*Google Site to explain the SEP's*)

Protist, Fungi & Plants Performance Indicators:
6.L.4A.2: Develop and use models to classify organisms based on the current hierarchical taxonomic structure (including the kingdoms of protists, plants, fungi, and animals).
6.L.5B.1 Construct explanations of how the internal structures of vascular and nonvascular plants transport food and water.
6.L.5B.2 Analyze and interpret data to explain how the processes of photosynthesis, respiration, and transpiration work together to meet the needs of plants. 6.L.5B.3 Develop and use models to compare structural adaptations and processes that flowering plants use for defense, survival and reproduction.
6.L.5B.4 Plan and conduct controlled scientific investigations to determine how changes in environmental factors (such as air, water, light, minerals, or space) affect the growth and development of a flowering plant.
6.L.5B.5 Analyze and interpret data to describe how plants respond to external stimuli (including temperature, light, touch, water, and gravity).

There are white and blue striped large envelopes in each school that have unique codes. Each envelope is good for five (5) teachers (even though it says it is only good for one). This is how you access the premium content (reproducibles, online activities and videos).

Inside Drawer 5 of a regular ed brand new kit, any teacher can find the Teacher's Manual. Inside the front cover, there is a unique code for that teacher to create their own FOSS Classes for their groups of students.

Week 19: 1/6 - 1/10 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #1 - **What is Life?** Part 1: **Living or Nonliving** Students observe antics of a mysterious material (camphor) when it is placed on water and record observations. They work in groups to sort pictures of objects into living and nonliving categories, defining the characteristics that qualify objects as living. Pictures are displayed in class so that students can reevaluate their decisions as the course progresses. Students/teacher set up mini-habitats for future study, using organic materials collected locally. **(Q, T, PS, SW, GS)** Teacher Ed. pp. 98 - 112 Student Ed. pp. 2 - 9	2	organism, living, nonliving, dead, dormant, evidence, Be sure to distinguish between dead and nonliving	Teacher Note: For a mini-habitat to likely have microscopic life consider using ditch water. Part 1: Notebook Master p. 1 and Teacher Master A & B; Living/Nonliving Card Sort Part 2 of this activity (to be conducted tomorrow) requires a lot of prep work. Refer to Investigations Guide pp. 113 - 117 and Teacher Master C & D *In Part 3 - Fungi, you will need bread cultures to observe. You will need to set up the bread mold and mushroom spore print activities (Teacher Ed. p. 296 Plant Week 5 p. 17) at least a week ahead of time, in order for the fungi to grow. See p. 7 - 10 of this document. This can be a teacher demo or lab group activity. Pearson Interactive Textbook What is Life? pp. 307 - 309	See FOSS: Next Generation books have been sent to replace our old Diversity of Life books that we received when we first got our kits. Please read this document in order to know what to do about it when you open your boxes/packages. FOSS Log in Information Literacy strategies from FOSS Part 1: **Living or Nonliving** Survey/post-test Camphor Crystals VIDEO: see FOSS online Plant Week 1 Student Booklet Plant Week 1 Teacher Key Kingdom Sort Mat	How do you know if something is living? How do you classify organisms based on the 5 Kingdoms of Life? *IT IS AN EXPECTATION OF ALL TEACHERS TO THOROUGHLY READ TEACHER PREP SECTIONS OF THE TEACHER MANUAL AS YOU NEED TO PREP LABS SOMETIMES 3 - 4 WEEKS IN ADVANCE. IT WILL BE VERY OBVIOUS TO ANYONE WALKING IN IF YOU HAVE NOT DONE SO.	6.S.1A.1 6.S.1A.7 6.L.4A.1

Week 19: 1/6 - 1/10 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Part 2: **Is Anything Alive in Here?** Students place five unidentified materials (sand, yeast, polyacrylate beads, radish seeds, and brine shrimp eggs) in different environments and observe what happens over several days. They determine if each material is living and record the evidence that supports their determinations. Students are introduced to the distinction between living, nonliving, dormant, and dead. (Q, T, PS, SW, GS) Teacher Ed. pp. 113 - 132 *Omit cuttings lab Student Ed. pp. 2 - 9	1	Be sure to distinguish between living, nonliving, dormant, dead, variables Movement and a change in size does not necessarily mean something is living or was ever alive	FOSS online and log in before using the link below: Link to FOSS online for detailed lab set up directions: *Slide 8 shows how materials need to be prepared before class *Purchase fresh yeast before lab *Investigation Guide p. 117: 300 ml will only serve approximately one class period with 8 groups. Depending on the number of groups, you will want to double or triple the amounts of ingredients. *Plan for an initial observation and one follow-up observation approximately 3 - 4 days later. Pearson Interactive Textbook What is Life? pp. 307 - 309	Part 2: **Is Anything Alive in Here?** Notebook masters 2 & 3 Teacher masters C & D DE: Is it alive? - Exploration DE: Getting to know: Characteristics of living things - Reading passage Plant Week 2 Student Booklet Plant Week 2 Teacher Key Characteristics of Living Things PPT	How do you know if something is living? What qualitative and quantitative data is represented? Which variables are controlled? Which variables are manipulated? Sample Language Objective:: I can distinguish between controlled and manipulated variables using an experiment.	6.S.1A.1 6.S.1A.3 6.S.1A.4 6.S.1A.6 6.S.1A.7 6.S.1A.8 6.L.4A.1

Week 19: 1/6 - 1/10 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Characteristics of Life Diversity of Life Student Ed. pp. 2 - 6 (optional)	2	living organism, resources for energy, respond to stimuli, reproduce, grow & develop, cells, eliminate waste, environment	This day provides students reference notes and the opportunity to explain the characteristics of life in their own words. Some video clips are included to be used/added according to Teacher Choice. Plant Week 2 Student Booklet Plant Week 2 Teacher Key	Diversity of Life Student Study Guide Diversity of Life Student WS Kagan Fan and Pick Student Directions Fan and Pick Questions (Kagan suggests making questions on a handout and giving each group playing cards to match question numbers.) (Ex: If there are four questions, hand out cards numbered Ace, 2, 3, 4) Links to characteristics of life video clip DE: Characteristics of living things - Techbook	What evidence supports the existence of life?	6.S.1A.1 6.S.1A.2 6.S.1A.5 6.S.1A.7 6.L.4A.1 6.L.4A.2

Week 20: 1/13 - 1/15 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Final Observation of Activity 1 Part 2: **Is Anything Alive in Here?** Teacher Ed. p. 127, #20	1	living, nonliving, dead, Dormant *Clarify the difference between dead and nonliving Movement and a change in size does not necessarily mean something is living or was ever alive	Each group will collect their final data recording on Notebook Master 2. *Note: You will have an extra column on your data sheet (if only making an initial and final observation). Note: Notebook Master 3 is class data. Be sure each group has an opportunity to view solutions 1-3 and record class data together.	Pearson Interactive Textbook Plant Cells p. 512 DE: Characteristics of Life - video clip DE - Living things - video clip	What microscopic structures make up organisms such as elodea? Distinguish how the elodea and the paramecium are alike and different? Identify if there is any life in the mini-habitats. If so, where do you think it came from?	6.S.1A.1 6.S.1A.2 6.S.1A.5 6.S.1A.6 6.S.1A.7 6.L.4A.1 6.L.4A.2 6.L.5A.1

Week 20: 1/13 - 1/15 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Blended Learning Lesson: **Characteristics of Living Things/Intro to Protists** Revisit **Brine Shrimp** Teacher Ed pp. 180 - 190 Revisit **Mini Habitats** Teacher Ed. pp. 239 - 244 Teacher **Prep and Observe Elodea** Teacher Ed pp. 214 - 218	1	elodea, nucleus, paramecium, euglena, amoeba, protist, cilia, flagella, pseudopods, autotroph, heterotroph	This activity provides a teacher-led small group. Observe brine shrimp, mini-habitats, and elodea; FOSS sheets - Brine Shrimp notebook master (p. 10) & Evidence of Life teacher master K (p. 11) The teacher can decide how in depth to go when using microscopes and filling in the chart. Teacher Note: Check your mini-habitat water under the microscope to make sure there is evidence of life. Create enough of each slide: brine shrimp, mini-habitat, and elodea for the number of students in your small group.	Blended Learning Lesson: Characteristics of Living Things/Intro to Protists Unless working in teacher-led, small group, students will work individually to complete assignments. Blended Learning Teacher Directions with student sheets and links Pearson Interactive Textbook Protists pp. 480 - 488 Plant Week 3 Student Booklet Plant Week 3 Teacher Key DE: Getting to know protists - Reading passage	What evidence can we find that brine shrimp are living organisms?	6.S.1A.1 6.S.1A.2 6.S.1A.5 6.S.1A.6 6.S.1A.7 6.L.4A.1 6.L.4A.2 6.L.5A.1

Week 20: 1/13 - 1/15 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Protists *TEACHER CREATED RESOURCES NOT FOUND IN FOSS **Characteristics of Protists**	1	paramecium, euglena, amoeba, cilia, flagella, pseudopod, nucleus, eukaryotic	This day provides students reference notes and the opportunity to explain the characteristics of life in their own words. Activities are included to be used according to Teacher Choice. Plant Week 4 Student Booklet Plant Week 4 Teacher Key	DE: Oddballs - interactive DE: Protists - Techbook Protist Notes and/or Pop Quiz Protist Fill in the Blank Notes Protist Quizizz D Watson: Protists and Fungi Rap or the same video with 17 EdPuzzle Questions D Watson: Protists and Fungi Rap 2 What is a Protist? Video Pearson Interactive Textbook Protists pp. 480 - 488	Categorize the 3 different types of protists and identify what makes them alike/unique. Sample Language Objective:: I can identify an organism as a protist using common characteristics and pictures..	6.S.1A.1 6.S.1A.2 6.S.1A.5 6.S.1A.6 6.S.1A.7 6.L.4A.1 6.L.4A.2 6.L.5A.1

Week 21: 1/21 - 1/24 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Protists *TEACHER CREATED RESOURCES NOT FOUND IN FOSS Collaboration-Creatiion Lesson Plan Guide Protists, Fungi, Plants: Protist Lesson (Q, T, PS, SW, GS)	1	Protists and their locomotion eu**g**lena use fla**g**ella parame**c**ium use **c**ilia am**o**eba use a pseud**o**pod heterotroph, autotroph	Collaboration-Creatiion Lesson Plan Guide Protists, Fungi, Plants: Protist Lesson *Teacher Note: In the Protist Model the directions state, "do not cut the string." Lesson designed as small group led by teacher while others work in pairs at tables. Students use critical thinking skills: (i.e., use the string for the flagella, cut paper with scissors to make "fringe" for cilia, etc.)	DE: Protist - classify them - Techbook USATestprep	Describe the characteristics of these three types of protists (euglena, paramecium, amoeba). How do they obtain food?	6.S.1A.2 6.L.4A.1 6.L.4A.2 6.L.5A.1
Review and Assessment	2	Characteristics of life; protists kingdom	Teacher created resources Finish/share The Protist Model then review and assess.	USATestprep	Describe and explain evidence to prove examples and non-examples of life. Justify the identification of protists based on their characteristics.	6.S.1A.2 6.L.4A.1. 6.L.4A.2 6.L.5A.1

Week 21: 1/21 - 1/24 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #4 - **Domains** Part 3: **Fungi** Students examine the bread mold cultures they prepared, discover samples of fungi or foods that were prepared using fungi, and learn more about fungal cell structures and functions. (Q, T, PS, SW, GS) Teacher Ed. pp. 334 - 347 Student Ed. - none	1	classification, control, culture, decomposer, domain, eukaryote, fungus, microorganism spore	Teacher Note: You will need a plant specimen in the next part of the unit called *Tradescantia zebrina* or a Wandering Jew - see page 379 in Teacher Ed. It might be hard to find so it's best to plan ahead. Notebook Master - Observing Fungi p. 28 *If there is no mold on your bread samples, skip this lab and revisit it when your mold grows (even if you are already into the plant section of this unit). Pearson Interactive Textbook Fungi pp. 490 - 497 Do Fungi Respond to Their Environment? pp. 498 - 499	DE: Protists - Techbook DE: Having a breakdown (compost) - Reading passage DE: Good for us - Reading passage Intro to Fungi Fungi Google Slide Plant Week 5 Student Booklet Plant Week 5 Teacher Key	What evidence is there that fungi are living organisms? Sample Language Objective:: I can evaluate an organism if it is a fungi with a partner.	6.S.1A.1 6.S.1A.3 6.S.1A.6 6.S.1A.7 6.S.1A.8 6.L.5A.1 6.L.4A.1 6.L.4A.2

Week 22: 1/27 - 1/31 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Fungi (Categorization & Obtaining Energy) *TEACHER CREATED RESOURCES NOT FOUND IN FOSS (Q, T, SW)	1	Fungi can be grouped according to how they obtain energy - saprophytic, parasitic, symbiotic (mutualistic) *Parasitic and mutualistic are both considered symbiotic	Teacher Choice	Introduction to parasitic fungi video: Refer to Plant Week 5 p. 20 Protist Fungi Awesome Video/Rap Parasitic Fungi EdPuzzle DE: It's all relative (protist vs fungi) - Reading passage	How do fungi obtain energy? EdPuzzle: Parasitic Fungi	6.S.1A.4 6.L.5A.1
Fungi Tropisms (Characteristics of Protists) *TEACHER CREATED RESOURCES NOT FOUND IN FOSS (Q, T, SW)	1	stimuli, tropisms, (gravitropism, hydrotropism) hyphae, mycelium	Check Spore Prints Pearson Interactive Textbook Plant Responses to Growth pp. 544 - 548	Spore Dispersal Video Clip How Fungi Grow Illustrations DE: Fantastic Fungi - Exploration Refer to Plant Week 5 pp. 12 - 13 & 17	How do fungi respond to external stimuli? EdPuzzle: Tropisms in Plants and Fungi	6.S.1A.4 6.L.5A.2

Week 22: 1/27 - 1/31 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Teacher created review and mini assessment Dimensional Analysis Intro Book Lesson 1 Lesson2 Lesson 3 Lesson4 *Expectation - complete one per quarter. Click link to sign up for free at wizer.me	1	One-step Dimensional analysis Conversion	To prepare for the plant unit: Plant several lima bean seeds in a clear container. Line a clear cup with cotton balls to use as "soil." This will be an excellent visual for students to observe root formation. Students will observe the cotyledon as it sheds from the plant. If the plants are placed near blinds, you will eventually witness thigmotropism as the plants intertwine between the blinds. The plants can also be used to discover hydrotropism (tilt the container so that roots grow toward water), phototropism (growing toward light). A plant can also be placed on its side to demonstrate gravitropism.	DE: Protists - Techbook USATestprep is an excellent resource for individualized student review Dimensional Analysis Step by Step DE: One Tomato, Two Tomato - Virtual Lab DE: Plants - Reading Passage	How can you support with evidence that protists and fungi are living organisms with characteristics unique to their individual kingdoms?	6.S.1A.4

Week 22: 1/27 - 1/31 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #5 - **Plants: The Vascular System** Part 1: **What Happened to the Water?** Students help design an investigation to find out what happens to the water when a stalk of celery sits in a vial of water overnight. Observe results and consider where the water may have gone. Students then set up a plastic bag to capture water as it exits a plant growing in the schoolyard. (Q, T, PS, SW, GS) Teacher Ed. p. 376 - 387 Student Ed. - none	2	vascular tissue xylem tubes	Teacher Note: cut the celery at an angle for best results. Pearson Interactive Textbook Classifying Plants pp. 516 - 522 Plant Structures pp. 526 - 531 Plant Week 6 Student Booklet Plant Week 6 Teacher Key	Login to FOSS for all materials: FOSS Log in Help Part 1: **What Happened to the Water?** Focus Questions 5.1 Teacher Master BB Teacher Master CC Vascular vs Nonvascular GoogleSlide D Watson: Vascular and Nonvascular Plants Supplemental Reading Passage DE: HCS Plant groups - Board DE: Plant structures and reproduction - Video (full length, use clips as needed)	What happened to the water? How is water transported through a vascular plant? How do nonvascular plants get water and nutrients? How do plants use water? Sample Language Objective:: I can illustrate the structures that transport water and food in a plant with a partner.	6.S.1A.1 6.S.1A.2 6.S.1A.3 6.S.1A.4 6.S.1A.5 6.S.1A.6 6.S.1A.8 6.L.5B.1 6.L.5B.2

Week 23: 2/3 - 2/7 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Types of Roots *TEACHER CREATED RESOURCES NOT FOUND IN FOSS (Q, T, SW)	1	fibrous roots, taproots	Pearson Interactive Textbook Plant Structures pp. 526 - 531	Week 6 Plant Booklet Types of Roots Worksheets pp. 16 - 18 of plant booklet	What is the difference between fibrous roots and taproots?	6.S.1A.6 6.L.5B.3
FOSS #5 - **Plants:The Vascular System** (cont) Part 2: **Looking at Plant Structures** Students observe red food coloring flow through the vascular tissue of a celery stalk (turns the leaves and veins red) - suggesting that water moves up to the leaves. Students remove the xylem in celery and observe stomata in leaves. Students set up a plastic bag to capture water as it exits in lima bean plants grown in your classroom (or outside). (Q, T, PS, SW, GS) Teacher Ed. pp. 388 - 400 Student Ed. pp. 50 - 51	1	vascular (system), nonvascular, transpiration, stomata (on the underside of leaves) vein, xylem, roots, guard cells,	See FOSS: Diversity of Life Teacher manual and online access to use any of the premium content materials listed in Additional Resources. Pearson Interactive Textbook Classifying Plants pp. 516 - 531 Plant Week 6 Student Booklet Plant Week 6 Teacher Key	Login to **FOSS** for all materials: FOSS Log in Help Part 2: **Looking at Plant Structures** Focus Questions 5.2 Notebook sheets 40 - 41 Notebook Database: Stomata Collection Database: Stem Collection Levels of Complexity: Plant Vascular System I-Check 5 DE: Build a plant - Exploration D Watson: Processes in the Leaves	What happened to the water? How is water transported through a vascular plant? How do nonvascular plants get water and nutrients? How do plants use water?	6.S.1A.2 6.S.1A.3 6.S.1A.4 6.S.1A.6 6.S.1A.8 6.L.5B.1 6.L.5B.2

Week 23: 2/3 - 2/7 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Non-vascular systems *TEACHER CREATED RESOURCES NOT FOUND IN FOSS **(Q, T, PS, SW, GS)** One Step Dimensional Analysis	1	vascular (system), nonvascular	Pearson Interactive Textbook What are the characteristics of Nonvascular plants? pp. 516 - 518 Plant Week 6 Student Booklet Plant Week 6 Teacher Key	EdPuzzles: Robert Plant Xylem & Phloem Vascular vs. Nonvascular Comparing Vascular to Nonvascular plants Step by Step Dimensional Analysis	How is water transported through a vascular plant? How do nonvascular plants acquire and use water and nutrients?	6.S.1A.4 6.S.1A.8 6.L.5B.1 6.L.5B.2
FOSS #5 - **Plants :The Vascular System** (cont) FOSS #5 - **Plants :The Vascular System** (cont) **(Q, T, PS, SW, GS)** Teacher Ed. pp. 401 - 419 Student Ed. pp. 52 - 57	2	photosynthesis transpiration, stomata, autotroph	*Use lima bean plants planted in your classroom, as an alternative to going outdoors. Process can still be followed on TE pg. 396 for transpiration. Pearson Interactive Textbook Leaves pp. 530 - 531 Photosynthesis and Cellular Respiration pp. 550 - 557 Plant Week 7 Student Booklet Plant Week 7 Teacher Key Photosynthesis&Respiration BrainPOP	Part 3: **Transpiration & Photosynthesis** Notebook sheets 42 - 47 Photosynthesis Animation Transport of Sugar and Water in Plants Animation Mosa Mack Photosynthesis Video and Song DE: Green Magicians - Reading Passage	How do the processes of photosynthesis, respiration, and transpiration work together to meet the needs of plants? Sample Language Objective:: I can describe the process of transpiration with results of lab and animation. EdPuzzle: Photoysnthesis 411 EdPuzzle: Photosynthesis Equation	6.S.1A.1 6.S.1A.3 6.S.1A.8 6.L.5B.2

Week 24: 2/10 - 2/14 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Photosynthesis, Respiration & Transpiration *TEACHER CREATED RESOURCES NOT FOUND IN FOSS **(Q, T, PS, SW)**	2	photosynthesis respiration, transpiration, chloroplast, chlorophyll, glucose, stomata, guard cells	Photosynthesis, Respiration Project Idea Respiration, Transpiration GoogleSlide Photosynthesis EdPuzzle Respiration Animation *Select the Return home arrow at bottom and choose "Respiration and Photosynthesis"	Pearson Interactive Textbook Photosynthesis and Cellular Respiration pp. 550 - 557 DE: Photosynthesis - Board DE: All Leaf Processes - Board" EdPuzzle: Photosynthesis Song EdPuzzle: Transpiration EdPuzzle: Photosynthesis	How do the processes of photosynthesis, respiration, and transpiration work together to meet the needs of plants?	6.S.1A.1 6.S.1A.3 6.S.1A.8 6.L.5B.2
Teacher Created Review and Assessment	1	vascular, nonvascular, photosynthesis respiration, transpiration, chloroplast, chlorophyll, glucose, stomata, guard cells, xylem, phloem	Teacher Choice for Review Activities	DE: Science Sleuth - The plant that wouldn't grow USATestprep is an excellent resource for individualized student review	How can you support with evidence that plants are living organisms with characteristics unique to the plantae kingdom?	6.L.5B.1

Week 24: 2/10 - 2/14 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #6 - **Plant Reproduction & Growth** Part 1: **Lima Bean Dissection** Students soak a lima bean seed in warm water for a few minutes and then explore the structural adaptations of the seed to gather information about how a seed and newly germinated plant survive. **(Q, T, PS, SW, GS)** Teacher Ed. pp. 438 - 447 Student Ed. - none	1	cotyledon, embryo, seed coat, dormancy, germination, adaptation Students add to their understanding that a dormant seed is alive.	Pearson Interactive Textbook How do seeds become new plants? pp. 532 - 543 Plant Week 8 Student Booklet Plant Week 8 Teacher Key IMPORTANT: It is imperative to read the Investigation Guide and prepare for the next day's lab. pp. 448 - 460	Part 1: **Lima Bean Dissection** Investigations Guide pp. 438 - 447 Notebook sheet No. 47 DE: Flower Power - Exploration DE: Plants Seed to Seed - Reading Passage DE: Plant structures and reproduction - Video (full length, use clips as needed) D Watson: Life Cycle of Flowering Plants	How do the structural adaptations of seeds help them survive? Sample Language Objective:: I can identify the components of a seed using the lab.	6.S.1A.3 6.S.1A.6 6.L.5B.3 6.L.5B.4 6.L.5B.5

Week 24: 2/10 - 2/14 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #6 - **Plant Reproduction & Growth (continued)** Part 2: **Environmental and Genetic Factors** Students investigate how increasing salinity affects the germination and growth of food crops. They compare four grains (corn, wheat, barley, and oats) to determine that the different grains have varying levels of salt tolerance. This leads to a discussion on genetic factors. **(Q, T, PS, SW, GS)** Teacher Ed. pp. 448 - 460 Student Ed. pp. 58 - 61	1	dormancy, salinity, salt tolerant, seed, environmental factors	It is imperative to read the Investigation Guide for this lab. pp. 448 - 459 *This will involve two, week long observations (Parts 2 & 3) *Parts 3-4 require real flowers Pearson Interactive Textbook How do seeds become new plants? pp. 532 - 543 Plant Week 8 Student Booklet Plant Week 8 Teacher Key	Login to **FOSS** for all materials: FOSS Log in Help Part 2: **Environmental and Genetic Factors** Notebook sheets 49 & 50 Teacher Masters EE, FF, GG & HH DE: How Plants Grow - Exploration DE: Science Sleuth - The Plant that wouldn't grow DE: Basic Needs - Exploration DE: Plants respond to external stimuli - Board EdPuzzle: Salinity and Crop Loss EdPuzzle: Environmental Factors and Plant Growth	How do environmental factors affect the germination and early growth of different food crops?	6.S.1A.3 6.S.1A.4 6.S.1A.6 6.S.1A.8 6.L.5B.3 6.L.5B.4 6.L.5B.5

Week 25: 2/19 - 2/21 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Plant Tropisms *TEACHER CREATED RESOURCES NOT FOUND IN FOSS (Q, T, SW)	2	stimulus, response, phototropism gravitropism, geotropism, hydrotropism thigmotropism	Pearson Interactive Textbook Plant Responses and Growth pp. 544 - 548 Plant Week 8 Student Booklet Plant Week 8 Teacher Key	Tropism Interactive PowerPoint Student Tropism Study Guide Student Tropism Practice Worksheet Tropism Expert Badges DE: Tropisms - Board DE: Plant responses - video EdPuzzle: Plant Tropisms	How do plants respond to external stimuli, including temperature, light, touch, water, and gravity?	6.S.1A.1 6.S.1A.2 6.S.1A.3 6.S.1A.4 6.S.1A.6 6.S.1A.7 6.S.1A.8 6.L.5B.3 6.L.5B.4 6.L.5B.5
Teacher Created **Protist/Fungi/Plant Review**	1	protists fungi, vascular, nonvascular, photosynthesis respiration, transpiration, seed parts, tropisms	Teacher Choice for Review Activities	USATestprep is an excellent resource for individualized student review DE: Plant Survival - Board EdPuzzle: Protists	Teacher Created	6.S.1A.1 6.S.1A.2 6.S.1A.3 6.S.1A.4 6.S.1A.6 6.S.1A.7 6.S.1A.8

Week 26: 2/24 - 2/28 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #6 - **Plant Reproduction & Growth** (cont) Part 3: **Flowering-Plant Reproduction** Students dissect flowers to learn flower structures and sexual reproduction. They sequence the steps of pollination and fertilization. Students consider methods of reproduction that non-flowering plants use. **(Q, T, PS, SW, GS)** *See Discovery Ed or GIZMO as an alternative to real flowers Teacher Ed. pp. 461 - 475 Student Ed. pp. 62 - 64, 65 - 72, 122 - 125, 126 - 133	1	flowering plants, sexual reproduction, stamen, filament, anther, sperm, pistil, ovary, egg, stigma, style, pollen, pollination, seed, fruit	Part 3: **Flowering-Plant Reproduction** Sheets 51 - 55 Master II Database Flower Collection Lab Technique: Preparing the flower dissection mount non-flowering plants slideshow Pearson Interactive Textbook- What Are the Structures of a Flower? pp. 534 - 535 Plant Week 8 Student Booklet Plant Week 8 Teacher Key Nonflowering plants slideshow Flowering v Nonflowering Plants Venn Diagram Reproduction of Flowering Plants EdPuzzle	DE: Flower Power - Exploration DE: Flower Parts and Function - Board DE: Plant Groups, Roots, and Stems - Board Suggested GIZMOS if time permits (ranked by level of important information within lesson) 1. Pollination Flower to Fruit 2. Flower Pollination 3. Growing Plants 4. Photosynthesis Lab 5. Germination D Watson: Parts of a Flower Rap EdPuzzle: Pollination Rock	How do environmental factors affect the germination and early growth of different food crops? What is the purpose of a flower? Sample Language Objective:: I can illustrate the different structures of a plant by using a diagram.	6.S.1A.1 6.S.1A.3 6.S.1A.6 6.S.1A.8 6.L.5B.3 6.L.5B.4 6.L.5B.5

Week 26: 2/24 - 2/28 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #6 - **Plant Reproduction & Growth** (cont) **Part 4: Flowers and Pollinators** Students review flowers, pollination, and seed formation. They examine pollinator-attracting characteristics of a flower to determine possible pollinators. Use Gizmo as an alternative. **(Q, T, PS, SW, GS)** *See Discovery Ed or GIZMO as an alternative to real flowers Teacher Ed. pp. 476 - 488 Student Ed. pp. 62 - 64, 65 - 72, 122 - 125, 126 - 133	1	plant adaptations, pollination, flowering, pollinators, fertilization	See Plant Week 9 for lab resources. Plant Week 9 Student Booklet Plant Week 9 Teacher Key	Login to **FOSS** for all materials: FOSS Log in Help Part 4: **Flowers and Pollinators** Notebook sheets 56 - 57 Teacher Master JJ Database: Pollinator Collection Database: Seed Collection (Optional) Pollinators Game I-Check 6 Investigation 6, Extensions Marla Spivak TED Talk, 2013 Planet FOSS **GIZMOS**- Pollination Flower to Fruit Flower Pollination Growing Plants DE: Magic School Bus Gets Planted	What adaptations do flowering plants have to accomplish pollination? Sample Language Objective:: I can describe the process of pollination with a partner.	6.S.1A.4 6.S.1A.6 6.S.1A.7 6.S.1A.8 6.L.5B.3 6.L.5B.4 6.L.5B.5

Week 26: 2/24 - 2/28 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Plant Defenses *TEACHER CREATED RESOURCES NOT FOUND IN FOSS (Q, T, SW)	.5	thorns, poisons, thigmotropism	Plant Week 9 Student Booklet Plant Week 9 Teacher Key	Engage Video Defenses Videos Plant Articles (10 Deadliest Plants) D Watson: Flowering Plant Structures EdPuzzle: 17 Amazing Animal Defenses	What are some natural defenses that plants have?	6.L.5B.3
Final observation for Part 2: **Environmental and Genetic Factors** (Q, T, SW)	.5	dormancy, salinity, salt tolerant, seed, environmental factor,	Part 2: **Environmental and Genetic Factors** Notebook sheets 49 - 50 Teacher Masters EE, FF, GG & HH	USATestprep DE: Whaddya Know Quiz Show - Plants - Game	How do environmental factors affect the germination and early growth of different food crops?	All Plant Standards
Plant Unit Review/ Common Assessment/Reteach (Q, T, SW)	2	Unit vocabulary	Administer Classroom Unit Test	Performance Matters	What do I need to review to prepare for the assessment?	All Plant Standards

Week 27: 3/2 - 3/6 Protist, Fungi & Plants

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Plant Unit Review/ Common Assessment/Reteach (Q, T, SW)	5	Unit vocabulary	Print out Student Report from the common assessment and use to reteach as necessary. USATestprep is an excellent resource that can be used to target the needs of individual students based on their common assessment results	USATestprep evaluation rubric form	What do I still need help with after completing the assessment?	All Plant Standards

Subject - Unit 4 - Animals & Classification

Teaching Dates: 03/09/20- 05/15/20	Common Assessment Window: 04/27/20- 05/01/20

Standards:6.L.4 *Support Document pages 52-69*

Conceptual Understandings: *(Google Site to explain the SEP's)*

SEP Performance Indicators:
6.S.1 The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.
6.S.1A Conceptual Understanding: The practices of science and engineering support the development of science concepts, develop the habits of mind that are necessary for scientific thinking, and allow students to engage in science in ways that are similar to those used by scientists and engineers.
6.S.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims.
6.S.1A.2 Develop, use, and refine models to (1) understand or represent phenomena, processes, and relationships, (2) test devices or solutions, or (3) communicate ideas to others.

Tested SEP Indicators within this unit:
6.S.1A.3 Plan and conduct controlled scientific investigations to answer questions, test hypotheses, and develop explanations: (1) formulate scientific questions and testable hypotheses, (2) identify materials, procedures, and variables, (3) select and use appropriate tools or instruments to collect qualitative and quantitative data, and (4) record and represent data in an appropriate form. Use appropriate safety procedures.
6.S.1A.4 Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs.

6.S.1A.5 Use mathematical and computational thinking to (1) use and manipulate appropriate metric units, (2) collect and analyze data, (3) express relationships between variables for models and investigations, or (4) use grade-level appropriate statistics to analyze data.
6.S.1A.6 Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams.
6.S.1A.7 Construct and analyze scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.

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Subject - Unit 4 - Animals & Classification

Teaching Dates: 03/09/20- 05/1/20	Common Assessment Window: 04/27/20- 05/01/20

Standards: 6.L.4 *Support Document pages 52-69*

Conceptual Understandings: *(Google Site to explain the SEP's)*

SEP Performance Indicators:
6.S.1A.8 Obtain and evaluate scientific information to (1) answer questions, (2) explain or describe phenomena, (3) develop models, (4) evaluate hypotheses, explanations, claims, or designs or (5) identify and/or fill gaps in knowledge. Communicate using the conventions and expectations of scientific writing or oral presentations by (1) evaluating grade-appropriate primary or secondary scientific literature, or (2) reporting the results of student experimental investigations.
6.S.1B Conceptual Understanding: Technology is any modification to the natural world created to fulfill the wants and needs of humans. The engineering design process involves a series of iterative steps used to solve a problem and often leads to the development of a new or improved technology.
6.S.1B.1 Construct devices or design solutions using scientific knowledge to solve specific problems or needs: (1) ask questions to identify problems or 2 needs, (2) ask questions about the criteria and constraints of the device or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

Animals & Classification Performance Indicators:
6.L.4: The student will demonstrate an understanding of how scientists classify organisms and how the structures, processes, behaviors, and adaptations of animals allow them to survive.
6.L.4A. Conceptual Understanding: Life is the quality that differentiates living things (organisms) from nonliving objects or those that were once living. All organisms are made up of cells, need food and water, a way to dispose of waste, and an environment in which they can live. Because of the diversity of life on Earth, scientists have developed a way to organize groups of organisms according to their characteristic traits, making it easier to identify and study them. Performance Indicators: Students who demonstrate this understanding can:
6.L.4A.1 Obtain and communicate information to support claims that living organisms (1) obtain and use resources for energy, (2) respond to stimuli, (3) reproduce, and (4) grow and develop.
6.L.4A.2 Develop and use models to classify organisms based on the current hierarchical taxonomic structure (including the kingdoms of protists, plants, fungi, and animals).

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Subject - Unit 4 - Animals & Classification

Teaching Dates: 03/09/20- 05/15/20	Common Assessment Window: 04/27/20- 05/01/20

Standards: 6.L.4 *Support Document pages 52-69*

Conceptual Understandings: (*Google Site to explain the SEP's*)

Animals & Classification Performance Indicators:

6.L.4B. Conceptual Understanding: The Animal Kingdom includes a diversity of organisms that have many characteristics in common. Classification of animals is based on structures that function in growth, reproduction, and survival. Animals have both structural and behavioral adaptations that increase the chances of reproduction and survival in changing environments. Performance Indicators: Students who demonstrate this understanding can:

6.L.4B.1 Analyze and interpret data related to the diversity of animals to support claims that all animals (vertebrates and invertebrates) share common characteristics.

6.L.4B.2 Obtain and communicate information to explain how the structural adaptations and processes of animals allow for defense, movement, or resource obtainment.

6.L.4B.3 Construct explanations of how animal responses (including hibernation, migration, grouping, and courtship) to environmental stimuli allow them to survive and reproduce.

6.L.4B.4 Obtain and communicate information to compare and classify innate and learned behaviors in animals.

6.L.4B.5 Analyze and interpret data to compare how endothermic and ectothermic animals respond to changes in environmental temperature.

Week 28: 3/9 - 3/13 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #8 - **Insects Part 1:** **Structure, Function, Behavior** Students observe Madagascar hissing cockroaches. After making initial observations of cockroach structures and behaviors, students focus on specific structure/function and behavior/function relationships. *Refer back to the plant unit and review living/nonliving organisms. **(Q, T, PS, SW, GS)** Teacher Ed. pp. 552 - 566 Student Ed. pp. 134 - 142	2	6.L.4A.1 (transition from plants to animals using roaches) Obtain resources Autotrophs, Heterotrophs, Respiration, Stimulus, Response, Growth & development 6.L.4B.2 (as it pertains to roaches) Defense, Exoskeleton, Structures for movement	Log in to FOSS then click the link to access: Teacher Prep Video Investigation 8 Teaching Slides *Provide romaine lettuce or apple slices for feeding Madagascar hissing cockroaches. ***Line top edges of containers with vaseline to prevent cockroaches from crawling up and out of containers.** Click the link to download: Characteristics of Living Things PPT	Login to **FOSS** for all materials: FOSS Log in Help Investigation 7 **Part 1: Structure, Function, and Behavior** Focus Questions 7.1 Notebook sheets 58 - 60 Master KK, LL Database: Insect Collection Day 1: • Notebooking resource from FOSS • Pre-Assessment • Literacy strategies from FOSS Week 1 Animal Packet Characteristics of Living Things Video Pearson Interactive Textbook: What do living things need to survive? p. 313 DE: Comparing Insects - Reading and Reflection	How do the structures and behaviors of the Madagascar hissing cockroach enable life's functions? What special structures do animals have that allows them defend themselves? Guided Readings to use during the unit:: Arthropods Echinoderms Mollusks Sponges & Cnidarians Vertebrate Guided Reading Structures for Defense Learned and Inherited Behaviors EdPuzzle: Giant Slug	6.S.1A.1 6.S.1A.2 6.S.1A.4 6.S.1A.6 6.S.1A.7 6.S.1A.8 6.L.4A.1 6.L.4B.2

Week 28: 3/9 - 3/13 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
FOSS #8 - **Insects** (cont) Part 2: **Insect Systems** Students review the levels of complexity. They use online activities to compare the insect circulatory system to the plant vascular system and the human cardiovascular (circulatory) system. **(Q, T, PS, SW, GS)** Teacher Ed. pp. 567 - 575 Student Ed. pp. 134 - 142	1	6.L.4B.2 Structures for Defenses (warn predator with sound) Structures for movement (jointed legs) Structures to obtain resources (mouth parts)	See FOSS: Diversity of Life Teacher Manual and online access to use any of the premium content materials listed in Additional Resources. *Provide romaine lettuce for feeding Madagascar hissing cockroaches. *Line top edges of containers with petroleum jelly to prevent cockroaches from crawling out of containers.	Login to **FOSS** for all materials: FOSS Log in Help Investigation 7, Part 2: Insect Systems Focus Questions 7.2 Notebook sheet No. 61 Levels of Complexity Master MM Extensions Cockroach mouth parts video Internal movement of insect flight DE: Insects - Reading passage	How is the insect transport system similar to and different from plant and human transport systems?	6.S.1A.1 6.S.1A.2 6.S.1A.4 6.S.1A.6 6.S.1A.7 6.S.1A.8 6.L.4B.2
Structures for Defense (Use Youtube videos) Teacher's Choice **(Q, T, SW)**	2	6.L.4B.2 (as it relates to animals) ALL Structures covered in this indicator	*TEACHER CREATED RESOURCES Animal Structures: Nearpod Activity & Activity Guide	USATestprep DE: Monster Bug Wars - Video	What special structures do animals have that allow them to defend themselves?	6.S.1A.8 6.L.4B.2

Week 29: 3/16 - 3/20 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Structures for defense, movement, obtain resources Teacher's Choice (Q, T, SW)	1	6.L.4B.2 (as it relates to animals) All structures covered in this indicator	Pearson Interactive Textbook Animal Movement pp. 390 - 399 Obtaining Energy pp. 400 - 405 How Do Animals Obtain Oxygen? pp. 406 - 410	Structures Practice *TEACHER CREATED RESOURCES DE: Don't bug me please - Reading activity DE: Change is good - Reading	What special structures do animals have that allows them defend themselves, move, and obtain resources?	6.S.1A.8 6.L.4B.2
Digital Animal Binder (kit from state department): SC3 (6.L.4B.1) Lesson A: Classification of Vertebrates & Invertebrates You may use these prepared slides in class if you would like: Animal Modules slides 1-10 (Q, T, PS, SW, GS)	2	taxonomy, hierarchy, scientific name, vertebrate, invertebrate, heterotroph, endoskeleton, exoskeleton, (ectothermic, endothermic) *Just for sorting animal groups; more details later.	Read through the lesson plan below to view materials needed and ensure all advanced prep is completed prior to the start of the lesson: SC3 (6.L.4B.1) Lesson A: Classification of Vertebrates & Invertebrates Make a set of cards with the animal pictures for each group Pearson Interactive Textbook How are Animals Classified? pp. 342 - 343	Animal Modules slides 1 - 10 DE: Classification - Exploration Classify Vertebrates/ Invertebrates GoNoodle: Yo' You Got a Backbone Rap D Watson: Invertebrates Rap D Watson: Taxonomy Rap Classification Station Rap	How can you develop a classification system for animals? What are the common characteristics of all vertebrates and invertebrates? EdPuzzle: Sponges EdPuzzle: Animal Classification-Vertebrate Animals EdPuzzle: King Phillip Classification	6.S.1A.2 6.S.1A.4 6.L.4A.2 6.L.4B.1

Week 29: 3/16 - 3/20 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Digital Animal Binder (kit from state department): SC3(6.L.4B.1) Lesson B: Ectothermic or Endothermic Vertebrate Animals (Classifying Vertebrates) You may use these prepared slides in class if you would like: Animal Modules slides 11 - 18 (Q, T, PS, SW, GS)	1	taxonomy, hierarchy, scientific name, vertebrate, invertebrate, heterotroph, endoskeleton, exoskeleton, (ectothermic, endothermic) *Just for sorting animal groups, more details later.	Read through the lesson plan below to view materials needed and ensure all advanced prep is completed prior to the start of the lesson: SC3(6.L.4B.1) Lesson B: Ectothermic or Endothermic Vertebrate Animals (Classifying Vertebrates) *Materials Needed: books and pictures of vertebrate animals, vertebrate picture cards for each group, color coded chart, colored pencils, index cards, chart paper, white boards, and expo markers.	Pearson Interactive Textbook Backbones p. 358 How do vertebrates control body temperature? p. 359 Vertebrate Diversity pp. 360 - 365 DE: Vertebrate Groups (Endo/Exothermic) DE: Vertebrates and Invertebrates - Board	What are the characteristics of the five groups of vertebrates?	6.S.1A.2 6.S.1A.4 6.L.4A.2 6.L.4B.1
Suggested Assessment Animal Blended Learning Lesson (Q, T, PS, SW, GS)	1	Essential Vocabulary 6.L.4A.2 6.L.4B.1	Possible time to review and assess animal and inquiry indicators covered this week	Pearson Interactive Textbook Skeletons and Muscles pp. 378 - 381 Suggested Assessment Animal Blended Learning Lesson Group Work Peer Evaluation Sheet	What are the characteristics of the five groups of vertebrates?	6.S.1A.2 6.S.1A.4 6.L.4A.2 6.L.4B.1

Week 30: 3/24 - 3/27 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Digital Animal Binder (kit from state department): SC3(6.L.4B.1) Lesson C: Invertebrates You may use these prepared slides in class if you would like: Animal Modules slides 19 - 23 (Q, T, PS, SW, GS)	1	All invertebrate groups and their identifying characteristics from 6.L.4B.1 Invertebrate structures for moving, defense, & obtaining resources from 6.L.4B.2	Read through the lesson plan below to view materials needed and ensure all advanced prep is completed prior to the start of the lesson: SC3(6.L.4B.1) Lesson C: Invertebrates Materials Needed: magnifying glasses, earthworms, crayfish, cricket, sea urchin, snail, pictures of invertebrates, copy of "I have..., Who has..." game cards, chart paper, pictures of invertebrates, and index cards.	Pearson Interactive Textbook Introduction to Invertebrates pp. 350 - 355 DE: Vertebrate Groups (Endo/Exothermic) DE: Classification of animals - video clip	What are the characteristics of the five groups of invertebrates?	6.S.1A.2 6.S.1A.4 6.S.1A.8 6.L.4A.2 6.L.4B.1 6.L.4B.2
Digital Animal Binder (kit from state department): SC3(6.L.4B.2) Lesson A: Moving, Defending, & Obtaining Resources You may use these prepared slides in class if you would like: Animal Modules slides 24 - 28 (Q, T, PS, SW, GS)	2	Research specific animals to describe their structures for defense, movement, and obtaining resources	Read through the lesson plan below to view materials needed and ensure all advanced prep is completed prior to the start of the lesson: SC3(6.L.4B.2) Lesson A: Moving, Defending, & Obtaining Resources Materials Needed: Animal pictures, Animal books and/or Internet access, blank chart	Pearson Interactive Textbook Obtaining Energy pp. 400 - 410 Alternate Defense Project DE: Animal Defense - Exploration	In what ways do animals defend themselves, move, and obtain resources? EdPuzzle: Sea Lamprey EdPuzzle: Hagfish EdPuzzle: Leeches	6.S.1A.2 6.S.1A.4 6.S.1A.8 6.L.4A.2 6.L.4B.1 6.L.4B.2

Week 30: 3/24 - 3/27 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Digital Animal Binder (kit from state department): SC3(6.L.4B.2) Lesson B: Bird Beaks Activity Collaborative Creation Lesson Planning Guide Bird Beaks You may use these prepared slides in class if you would like: Animal Modules slides 29 - 34 (Q, T, PS, SW, GS)	1	Model how birds use different structured beaks to obtain resources	Read through the lesson plan below to view materials needed and ensure all advanced prep is completed prior to the start of the lesson: SC3(6.L.4B.2) Lesson B: Bird Beaks Activity Materials Needed: animal books and pictures, "Bird Beak Activity", blue forceps (tweezers), clothespins, spoons, cups of small objects - beads, coins, sequins, marbles, different seeds, etc.	Collaborative-Creation Lesson Planning Guide Bird Beaks The link below is included in the lesson above: What Can I Eat With This Beak? Group Work Peer Evaluation Sheet DE: Structure of bird beaks - Video clip DE: Birds - Reading passage	How do various bird beak structures help them obtain resources?	6.S.1A.2 6.S.1A.4 6.S.1A.8 6.L.4A.2 6.L.4B.1 6.L.4B.2

Week 31: 3/30 - 4/3 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Digital Animal Binder (kit from state department): SC3(6.L.4B.5) Lesson A: Goldfish Activity You may use these prepared slides in class if you would like: Animal Modules slides 35 - 40 **(Q, T, PS, SW, GS)**	2	All of 6.L.4B.5 Endothermic (birds & mammals) eat more to have energy for generating body heat. Ectothermic (most fish, amphibians, and reptiles) don't use food energy to keep warm.	SC3(6.L.4B.5) Lesson A: Goldfish Activity Materials Needed: paper, markers, thermometer, goldfish, beakers, bowls, temperature graph, ice, and warm water Lizard Soaking Up Those Rays activity - good graphing practice	Since the standard states to analyze and interpret graphs, it is appropriate for you to just provide the graph for them to analyze in the "Lizard Soaking Up Those Rays" activity. Infrared Zoo Pictures DE: Endo/Ectothermic - Explore DE: Animals adapt to extreme temperatures - video clip	What are characteristics of endothermic and ectothermic animals? How does temperature affect the respiration rate of goldfish?	6.S.1A.4 6.L.4B.5
Animal Classification Teacher's Choice **(Q, T, SW)**	2	At this point all information from these indicators should be covered: 6.L.4A.1 6.L.4A.2 6.L.4B.1 6.L.4B.2 6.L.4B.5	Pearson Interactive Textbook What is an Animal? pp. 340 - 343 Introduction to Invertebrates pp. 350 - 355 Introduction to Vertebrates pp. 356 - 359	*TEACHER CREATED RESOURCES DE: Classification Pinball - Skillbuilder	How are animals classified and what common characteristics do they share? Name four things all living organisms do for survival?	6.L.4A.1 6.L.4A.2 6.L.4B.1

Week 31: 3/30 - 4/3 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Digital Animal Binder (kit from state department): SC3(6.L.4B.3 and 6.L.4B.4) Lesson A: Environmental Stimuli You may use these prepared slides in class if you would like: Animal Modules slides 41 - 47 (Q, T, PS, SW, GS)	1	environmental stimuli, behavioral responses, hibernation, migration, defense, courtship	SC3(6.L.4B.3 and 6.L.4B.5) Lesson A: Environmental Stimuli Materials needed: plastic sheet, crumpled paper, water, paper towels, paper, animal books Article: Why Do Animals Migrate?	DE: Structures, Behaviors, and Functions - Board *TEACHER CREATED RESOURCES Mealworm Virtual Lab - Responding to Stimuli Suggested Articles: Teeth Tell Tales Journey North - Monarch Butterfly Migration The site has other animal migration info. as well. Birds Fly North DE: Instinct: An automatic response - Reading passage	How do environmental stimuli cause physical responses in animals?	6.L.4B.3

Week 32: 4/6 - 4/9 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Digital Animal Binder (kit from state department): SC3(6.L.4B.3 and 6.L.4B.4) Lesson B: Environmental Stimuli You may use these prepared slides in class if you would like: Animal Modules slides 41 - 47 (Q, T, PS, SW, GS)	2	environmental stimuli, behavioral responses, hibernation, migration, defense, courtship, imprinting, grouping	SC3(6.L.4B.3 and 6.L.4B.5) Lesson B: Environmental Stimuli Materials Needed: animal books and/or Internet access, "5W's" Graphic Organizer, Concept Map Pearson Interactive Textbook What is a Behavior? pp. 444 - 451 Patterns of Behavior pp. 452 - 459	DE: Hibernation and Homing - Video clip DE: Animal Behavior - Video Animal Adaptations: What Are They? Robin Migration Interactive Grouping Photos Fish Migration Interactive Game	In what ways do animals respond behaviorally to environmental stimuli?	6.L.4B.3
Digital Animal Binder (kit from state department): SC3(6.L.4B.4) Lesson A: Inherited and Learned Behaviors You may use these prepared slides in class if you would like: Animal Modules slide 48 (Q, T, PS, SW, GS)	2	learned behavior (imprinting & conditioning), inherited behaviors (instincts & reflexes)	SC3(6.L.4B.4) Lesson A: Inherited and Learned Behaviors Materials: Streamlined Video ("Animal Instincts"), index cards, cards for card sort, Streamline Video on learned and inherited behaviors "Animal Intelligences".	Animal Defense Project EdPuzzle: Defense EdPuzzle: Learned and Inherited Behaviors Rat Basketball Learned Behavior & Questions DE: Behavior - Video clip DE: Behaviors - Techbook	How do learned behaviors in animals differ?	6.L.4B.4

Week 33: 4/20 - 4/24 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Environmental Stimuli & Animal Behavior Teacher's Choice (Use videos) (Q, T, SW)	3	environmental stimuli, behavioral responses, hibernation, migration, defense, courtship, learned behavior (Imprinting & conditioning), inherited behaviors (instincts & reflexes)	Learned Inherited Venn Diagram Using A Tool - Culinary Capuchins	TEACHER CREATED RESOURCES DE: Moths of a different color - Exploration DE: Animal Adaptations - Board DE: Seeing with sound - Exploration DE: Animals respond to environment - Board	In what ways do animals respond behaviorally to environmental stimuli?	6.L.4B.3 6.L.4B.4
Classification Teacher's Choice (Q, T, SW)	2	taxonomy, hierarchy, classification	Pearson Interactive Textbook Classifying Life pp. 316 - 323 Domains and Kingdoms pp. 324 - 327	Classification Powerpoint Classification Practice in the Student Packet *TEACHER CREATED RESOURCES DE: Classifying Animals - Interactive Video	How are animals classified and what common characteristics do they share?	6.L.4B.1 6.L.4A.2

Week 34: 4/27 - 5/1 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Animal Unit Review (Q, T, PS, SW, GS)	3	Unit Vocabulary	Animal unit review activities Possible time to review and assess animal and inquiry indicators covered this week. *Highly suggested to use data to create small groups to drive the review process. A teacher small group should be used along with a variety of review methods to engage students.	1. Concept Review Game 2. Interactive site 3. Jeopardy Game 4. Characteristics of Living Things 5. Classification Station Rap DE: We are the world - Reading DE: Go, Bug, Go - Reading DE: Structures, Behaviors, and Functions - Board	What do I need to review from the animal unit to prepare for the assessment?	All Animal Standards
Animal Common Assessment/Reteach (Q, T, SW)	1	Unit Vocabulary	Print out student report from the common assessment and use to reteach as necessary. USATestprep is an excellent resource that can be used to target the needs of individual students based on common assessment results.	USATestprep evaluation rubric form	What do I still need help with after completing the assessment?	All Animal Standards

Week 34: 4/27 - 5/1 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Dimensional Analysis	1	One step dimensional analysis	Dimensional Analysis Intro Book **Lesson 1** **Lesson 2** **Lesson 3** **Lesson 4** *Expectation - complete one per quarter	**SEP's in the Middle School** Dimensional Analysis Step by Step DE: Insects Meet Nutritional Needs - Math activity	How can I change one unit of measurement to another unit of measurement using math processes?	6.S.1A.5

Week 35: 5/4 - 5/8 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
PASS Review & Testing (Q, T, PS, SW, GS)	5	Unit vocabulary	Visit the SC Dept. of Ed. website to analyze the SC PASS Science test blueprint and sample questions. This, along with your student data, will help your science team determine which indicators should be emphasized during review. Use previously collected data from classroom assessments and common assessment results to guide your PASS review.	Items not used from the "Additional Resources" column of this curriculum map would be appropriate to use as activities for review.	What are the "big ideas" from previous units to review before completing the assessment?	All Standards

Week 36: 5/11 - 5/15 Animals & Classification

Required Investigation	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
PASS Review & Testing (Q, T, PS, SW, GS)	5	Unit Vocabulary	Visit the SC Dept. of Ed. website to analyze the SC PASS Science test blueprint and sample questions. This, along with your student data, will help your science team determine which indicators should be emphasized during review. Use previously collected data from classroom assessments and common assessments results to guide your PASS review	Items not used from the "Additional Resources" column of this curriculum map would be appropriate to use as activities for review.	What are the "big ideas" from previous units to review before completing the assessment?	All Standards

Week 37+: 5/15+ After PASS Testing Suggestions

Suggested Inquiry Activities	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
*Teacher choice of the following options until school ends.						
Plant Doctors	2-3	Identify/apply knowledge of plants	Make folders to represent doctor/patient file folders	Plant Doctors Resources Plant Doctor Google Forms		
Detective Unit	Varies	Reading and finding supporting evidence in the reading	Make a class set of the reading documents. Obtain the larte lined inner-school mail envelopes and folders Make folders and badges for your detective students	Crime Scene Basics_ppt Crime Scene Basics student sheet Detective Shield Cold Case Files 2 Minute Mysteries books can be used too		
Code Orange	8-10	Reading Introductions to infectious diseases for 7th grade	Purchase class set of paperback book Code Orange using science department money Free Audible account for audio	Audible Code Orange PPT		

Week 37+: 5/15+ After PASS Testing Suggestions

Suggested Inquiry Activities	# of Days	Clarifying Key Concepts	Advanced Prep & Teacher Notes	Additional Resources	Focus Questions	Link to Learning Targets
Other Lab/Activity Ideas			6th Grade Science The Movie Directions Facts & Tricks Google Slides Project Hot Air Balloon & Parachutes Ah Chute Parachute Project My Parachute Experiment Swedish Fortune Telling Fish M&M's Count & Crunch What is in a Bag of M&M's Weight Watchers Balloon Powered Car Toy Tech Challenge Bubble Gum Lab Golf Ball Lab It's Simply Marbleous	DE: Build a better pollinator - STEM activity		

6th Grade Science Unpacking the Standards

1. Yellow Highlight indicates the skills students are expected to master.
2. Underlined Text indicates the concepts that will be covered using the highlighted skills.
3. **Scope** - breaks down the essential skills and concepts necessary to comprehend the indicator.
4. **Clarification** - additional information provided to aid instructors and maintain consistency throughout the district including:
    - specific definitions (found in support guide)
    - types of acceptable models
    - acceptable amounts of examples necessary for students to master the topic
5. **Learning Targets** that are stated in **black text** indicates essential knowledge that is required for students to master the indicator.
6. **Learning Targets** that are stated in **red text** indicates essential knowledge that is implicit for students to make connections to the indicator.

Indicator 6.E.2A.1-Weather & Climate

Indicator 6.E.2A.1 **Develop** and **use models to exemplify** the properties of the atmosphere (including the gases, temperature and pressure differences, and altitude changes) and the relative scale in relation to the size of Earth.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 12-13	➔ I can develop a model of the composition of gases throughout the layers of the atmosphere.
• Develop models • Use models • exemplify	• Composition of gases in the atmosphere • Temperature differences in the atmosphere • Pressure differences in the atmosphere • Altitude changes in the atmosphere • Relative scale in relation to the size of the Earth	See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) which will be used to exemplify (represent) the properties of the atmosphere. Pictures, illustrations, or simulations can be used. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can explain what an atmosphere is and why it's important to living things on Earth. ➔ I can develop a model to show temperature differences throughout the layers of the atmosphere. ➔ I can develop a model to show pressure differences throughout the layers of the atmosphere. ➔ I can develop a model to show altitude changes in the atmosphere ➔ I can identify the layers of Earth's atmosphere in order from Earth's surface towards outer space.

Continued on next slide

Indicator 6.E.2A.1-Weather & Climate

Indicator 6.E.2A.1 **Develop** and **use models to exemplify** the properties of the atmosphere (including the gases, temperature and pressure differences, and altitude changes) and the relative scale in relation to the size of Earth. (Continued)

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 32-33	➔ I can draw a model that exemplifies the composition of gases throughout the layers of the atmosphere.
• Develop and use models	• Properties of the atmosphere • Atmospheric gases • Atmospheric temperature differences • Atmospheric pressure differences • Atmospheric altitude changes • Atmospheric scale in relation the size of the Earth	See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) which will be used to exemplify (represent) the properties of the atmosphere. Pictures, illustrations, or simulations can be used. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can draw a model that exemplifies temperature changes throughout the layers of the atmosphere. ➔ I can use a model to identify pressure changes throughout the layers of the atmosphere. ➔ I can use a model to identify altitude changes throughout the layers of the atmosphere.

Indicator 6.E.2A.2 -Weather & Climate

Indicator 6.E.2A.2 Critically **analyze** scientific arguments based on evidence for and against how different phenomena (natural and human induced) may contribute to the composition of Earth's atmosphere.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 14-15	→ I can analyze an argument and identify evidence for and against how natural phenomena contribute to the changes in the composition of Earth's atmosphere.
• Analyze scientific arguments	• Natural phenomena contributing to the changing of the atmosphere including volcanic eruptions • Human phenomena contributing to the changing of Earth's atmosphere including the addition of greenhouse gases to the atmosphere	See SEPUP TE • Students will analyze evidence from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs to debate how different phenomena have contributed to the composition of the Earth's atmosphere. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing explanations	→ I can use evidence to support a claim or argument. → I can analyze scientific data (graphs, charts, models). → I can describe the effects of volcanic eruptions including the gases that are emitted into the atmosphere → I can analyze how human induced phenomena contribute to changes in the composition of Earth's atmosphere. → I can explain what a greenhouse gas is and give examples of some (carbon dioxide, methane, and water vapor) → I can explain the long term effects of the increase of greenhouse gases and their impact on the Earth and its atmosphere

Indicator 6.E.2A.3-Weather & Climate

Indicator 6.E.2A.3 **Construct** explanations of the processes involved in the cycling of water through Earth's systems (including transpiration, evaporation, condensation and crystallization, precipitation, and downhill flow of water on land).

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 16-18	→ I can explain how the process of transpiration is involved in the cycling of water through Earth's systems.
• Construct explanations	• Steps of the water cycle: transpiration, evaporation, condensation, crystallization, precipitation and downhill flow of water	See SEPUP TE • Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing explanations	→ I can explain how the process of evaporation is involved in the cycling of water through Earth's systems. → I can explain how temperature affects the changing states of water → I can explain how the processes of condensation and crystallization are involved in the cycling of water through Earth's systems. → I can explain how different types of precipitation are formed within clouds → I can explain how runoff and the downhill flow of water is involved in the cycling of water through Earth's systems. → I can recognize that energy from the sun (radiant energy) is the driving force for the water cycle → I can label a model of the water cycle that shows all water eventually flows back towards sea-level

Indicator 6.E.2B.1 -Weather & Climate

Indicator 6.E.2B.1 **Analyze** and **interpret data** from weather conditions (including wind speed and direction, air temperature, humidity, cloud types, and air pressure), weather maps, satellites, and radar **to** **predict** local weather patterns and conditions.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 19-21	
• Analyze • Interpret • Predict	• Data from weather conditions: wind speed and directions, air temperature, humidity, cloud types, and air pressure • Use weather maps, satellites, radar to predict local weather patterns and conditions.	See SEPUP TE • Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning, (2) support hypotheses, explanations, claims, or designs, or predict patterns.	➔ I can analyze and interpret data from weather maps including air temperature, wind speed & direction, humidity, cloud cover and air pressure. ➔ I can describe the ways that meteorologists use tools to predict weather patterns. ➔ I can identify symbols on a weather map ➔ I can read and interpret isobars and isotherms on a weather map to determine air pressure and temperature at different locations. ➔ I can use air pressure patterns to predict local weather conditions or patterns ➔ I can use isobars and isotherms to predict local weather conditions and patterns ➔ I can analyze and interpret data from satellite images ➔ I can analyze and interpret data from radar images ➔ I can predict local weather patterns and conditions based on data ➔ I can define humidity and model air pressure ➔ I can identify the 3 main cloud types and the weather associated with each

Indicator 6.E.2B.2-Weather & Climate

Indicator 6.E.2B.2 **Develop** and **use models** to **explain** how relationships between the movement and interactions of air masses, high and low pressure systems, and frontal boundaries result in weather conditions and storms (including thunderstorms, hurricanes and tornadoes).

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pages 22-24	→ I can collect data using weather tools.
• Develop Models • Use Models • Explain Relationships • Cause and Effect	• Movement and interactions of air masses, fronts, high and low pressure systems that result in weather conditions and storms.	See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) • Students will use models to construct explanations/cause and effect of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams. • Explaining can be a series of questions which require the use of the model to answer, an oral presentation, or a written document. • The audience can be the teacher, a partner, a group or the class.	→ I can analyze weather data. → I can develop models shows how fronts form. → I can develop models shows how storms form. → I can identify symbols on a weather map. → I can identify cloud types. → I can explain how water travels through water cycle. → I can use models to show how fronts are formed. → I can use models to show how storms form. → I can predict weather using clouds. → I can analyze weather data to explain how it results in storms. → I can explain how to prepare for extreme weather and how to stay safe in these situations

Indicator 6.E.2B.3-Weather & Climate

Indicator 6.E.2B.3 **Develop** and **use models** to **represent** how solar energy and convection impact Earth's weather patterns and climate conditions (including global winds, the jet stream, and ocean currents).

Scope		Clarification	Learning Targets
Skills • Develop models • Use models • Represent	Concepts • Represent how solar energy and convection impact Earth's weather patterns and climate conditions.	Support Documents pgs 25-26 See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) • Students will use models to represent the impacts of solar energy on weather patterns. • The audience can be the teacher, a partner, a group or the class.	→ I can compare and contrast weather and climate → I can develop models to represent global winds → I can explain how global winds affect the movement of hurricanes (trade winds and westerlies) → I can explain how global winds affect the climate of an area → I can develop models to represent the jet streams → I can explain how the jet stream and its location affect the climate of an area → I can develop models to represent ocean currents → I can explain how ocean currents affect the climate of an area → I can develop models to represent climate zones → I can use models to represent global winds → I can use models to represent the jet streams → I can use models to represent ocean currents

Indicator 6.E.2B.3-Weather & Climate

Indicator 6.E.2B.3 **Develop** and **use models** to **represent** how solar energy and convection impact Earth's weather patterns and climate conditions (including global winds, the jet stream, and ocean currents). (CONT.)

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 25-26	➔ I can use models to represent global winds
• Develop models • Use models • Represent	• Represent how solar energy and convection impact Earth's weather patterns and climate conditions.	See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) • Students will use models to represent the impacts of solar energy on weather patterns. • The audience can be the teacher, a partner, a group or the class.	➔ I can use models to represent the jet streams ➔ I can use models to represent ocean currents ➔ I can use models to represent climate zones ➔ I can model heat transfer through convection and radiation ➔ I can explain that solar energy is energy from the sun ➔ I can explain that solar energy is a form of heat transfer through radiation

Indicator 6.E.2B.4-Weather & Climate

Indicator 6.E.2B.4 **Construct explanations** for how climate is determined in an area (including latitude, elevation, shape of the land, distance from water, global winds, and ocean currents).

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 27-28	→ I can explain how latitude affects climate in an area.
• Construct explanations	• How climate is determined in an area.	See SEPUP TE • Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing explanations	→ I can model how energy from the sun affects climate in an area → I can differentiate between indirect and direct sunlight → I can explain how elevation affects climate in an area. → I can explain how temperature changes with elevation → I can explain how the shape of the land affects climate in an area. → I can explain how mountains affect climate → I can explain how the distance from the water affects climate in an area. → I can model land and sea breezes → I can model convection → I can model pressure changes → I can explain how the global winds affect climate in an area. → I can explain how ocean currents affect climate in an area.

Indicator 6.P.3A.1-Conservation of Energy

Indicator 6.P.3A.1 **Analyze** and **interpret** data to **describe** the properties and **compare** sources of different forms of energy (including mechanical, electrical, chemical, radiant, and thermal).

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 29-31	→ I can define energy
• Analyze • Interpret • Describe • Compare	• Sources of different forms of energy • Properties of the different forms of energy	See SEPUP TE • Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs. • When comparing and classifying students will sort, in a logical way, or find the categories to put them into. This can be done in charts, diagrams, illustrations, concept maps, T-charts,card sort, or webs.	→ I can describe the properties of mechanical energy by analyzing and interpreting data → I can describe the properties of electrical energy by analyzing and interpreting data → I can describe the properties of chemical energy by analyzing and interpreting data → I can describe the properties of radiant energy by analyzing and interpret data → I can identify forms of radiant energy: solar, light and sound → I can describe the properties of thermal energy by analyzing and interpreting data → I can compare the sources of different forms of energy by analyzing and interpreting data → I can categorize forms of energy into two main types: kinetic and potential → I can define kinetic and potential energy

Indicator 6.P.3A.2-Conservation of Energy

Indicator 6.P.3A.2 **Develop** and **use** models to **exemplify** the conservation of energy as it is **transformed** from kinetic to potential (gravitational and elastic) and vice versa.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 32-34	➔ I can draw a model to show the conservation of energy as it is changes between kinetic energy and potential energy in a system.
• Develop • Use • Exemplify	• Energy • transformed from kinetic to potential and potential to kinetic	See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) which will be used to exemplify (represent) the properties of the atmosphere. Pictures, illustrations, or simulations can be used. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can interpret (explain the meaning of) a diagram that shows how energy changes between kinetic and potential energy in a system. ➔ I can identify and remember the Law of Conservation of Energy. ➔ I can explain how the presence of gravitational potential energy and kinetic energy in a system supports the Law of Conservation of Energy.

Indicator 6.P.3A.3-Conservation of Energy

Indicator 6.P.3A.3 **Construct explanations** for how energy is conserved as it is transferred and transformed in electrical circuits.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 35-38	➔ I can identify a complete (or closed) circuit and notice the difference in an incomplete circuit.
• Construct explanations	• Energy • conserved • transferred • transformed • electrical circuits	See SEPUP TE • Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams. • The audience can be the teacher, a partner, a group or the class.	➔ I can identify and remember the Law of Conservation of Energy. ➔ I can use a model of an electric circuit to explain how energy is conserved as it is transferred and transformed within the system. ➔ I can predict how energy will be transferred and transformed within an electrical circuit based on my observations and measurements.

Indicator 6.P.3A.4-Conservation of Energy

Indicator 6.P.3A.4 **Develop and use models** to **exemplify** how magnetic fields produced by electrical energy flow in a circuit is interrelated in electromagnets, generators, and simple electrical motors.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 39-41	➔ I can identify a magnetic field.
• Develop models • Use models • Exemplify	• Magnetic fields are produced by electrical energy flow in a circuit • Electromagnets • Generators • Simple electrical motors	See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) which will be used to exemplify (represent) the properties of the atmosphere. Pictures, illustrations, or simulations can be used. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can describe the properties of a magnetic field ➔ I can use a model to explain how the flow of electricity allows an electromagnet to generate a magnetic field. ➔ I can develop a model to explain how the flow of electricity allows an electromagnet to generate a magnetic field. ➔ I can use a diagram/illustration to explain the energy transformations found in simple motors and generators. ➔ I can develop a diagram/illustration to explain the energy transformations found in simple motors and generators. ➔ I can describe how an electric motor works. ➔ I can develop a model to show how an electric motor works. ➔ I can describe how a generator can be used to make electricity. ➔ I can develop a model to show how generator can be used to make electricity. ➔ I can explain how electric motors, generators, and electromagnets are related.

Indicator 6.P.3A.5-Conservation of Energy

Indicator 6.P.3A.5 **Develop and use models** to **describe and compare** the directional transfer of heat through convection, radiation, and conduction.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 42-43	➔ I can describe the properties of conductors and insulators.
• Develop Models • Use Models • Describe • Compare	• Directional transfer of heat • Convection • Conduction • Radiation	See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) which will be used to develop comparisons of the way heat is transferred. • Describing can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document. • When comparing and classifying students will sort, in a logical way, or find the categories to put them into. This can be done in charts, diagrams, illustrations, concept maps, T-charts,card sort, or webs.	➔ I can identify materials that are conductors and insulators ➔ I can use a model to explain how heat is transferred through convection. ➔ I can develop a model to explain how heat is transferred through convection. ➔ I can use a model to explain how heat is transferred through radiation. ➔ I can develop a model to explain how heat is transferred through radiation. ➔ I can use a model to explain how heat is transferred through conduction. ➔ I can develop a model to explain how heat is transferred through conduction. ➔ I can describe how particles behave when heat energy is added. ➔ I can develop a model to show how particles behave when heat energy is added. ➔ I can predict the direction of heat transfer at different temperature points.

Indicator 6.P.3A.6 -Conservation of Energy

Indicator 6.P.3A.6 **Design and test devices** that minimize or maximize heat transfer by conduction, convection, or radiation.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 44-45	➔ I can describe the properties of conductors and insulators.
• Design devices • Test devices	• Minimize or maximize heat transfer • conduction • convection • radiation	• Using the COE Activity, 2.7 students will design and test a device.	➔ I can identify materials that are conductors and insulators ➔ I can design and test materials to determine whether they minimize or maximize heat transfer. ➔ I can give examples of how testing materials to be conductors or insulators can impact my life (for example, winter clothing compared to exercise clothing).

Indicator 6.P.3B.1-Conservation of Energy

Indicator 6.P.3B.1 **Plan and conduct** controlled scientific investigations to **provide evidence** for how the design of simple machines (including levers, pulleys, inclined planes) helps transfer mechanical energy by reducing the amount of force required to do work.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 46-48	➔ I can plan and conduct an experiment to show how simple machines help transfer mechanical energy by reducing the amount of force required to do work.
• Plan • Conduct • Provide evidence	• Controlled scientific investigations • provide evidence for how the design of simple machines helps transfer mechanical energy by reducing the amount of force required to do work	See SEPUP TE • Students will plan and construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams. • Answering questions can be in the form of an oral presentation, or a written document. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can plan and conduct an experiment to show how simple machines help transfer mechanical energy by reducing the amount of force required to do work. ➔ I can compare the amount of force used to do work with and without the use of simple machines. ➔ I can plan and conduct an experiment to show how a lever reduces the amount of force needed to move an object from one place to another. ➔ I can plan and conduct an experiment to show how a pulley reduces the amount of force needed to move an object from one place to another. ➔ I can plan and conduct an experiment to show how an inclined planes reduces the amount of force needed to move an object from one place to another.

Indicator 6.P.3B.2-Conservation of Energy

Indicator 6.P.3B.2 **Design and test solutions** that improve the efficiency of a machine by reducing the input energy (effort) or the amount of energy transferred to the surrounding environment as it moves an object.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 49-51	➔ I can describe efficiency and what makes machines more or less efficient.
• Design solutions • Test solutions	• Improve efficiency • reducing the input energy • amount of energy transferred to the surrounding environment as it moves an object.	• Use COE Activity 1.7, students will design and test a machine to improve the efficiency of a machine.	➔ I can design and test solutions to identify ways to reduce the effort required to use a simple machine. ➔ I can ask questions to identify ways to minimize the amount of energy transferred to the environment by a simple machine.

Indicator 6.L.4A.1-Protists, Fungi & Plants

Indicator 6.L.4A.1 **Obtain** and **communicate** information to **support** claims that living organisms (1) obtain and use resources for energy, (2) respond to stimuli, (3) reproduce, and (4) grow and develop.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 52-54	➔ I can research and explain how protists obtain and use resources for energy.
• Obtain • Communicate • support	• living organisms • obtain and use resources for energy • respond to stimuli, • reproduce • grow and develop.	See SEPUP TE • Obtain by observation, scientific investigation, and research. • Explaining can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document. • Supporting claims can be in the form of evidence and trade-offs • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing the model.	➔ I can explain how protists respond to stimuli. ➔ I can explain how protists reproduce. ➔ I can explain how protists grow and develop. ➔ I can use evidence to explain how protists respond to stimuli ➔ I can use evidence to show how protists grow and develop. ➔ I can research and explain how fungi obtain and use resources for energy. ➔ I can explain how fungi respond to stimuli. ➔ I can explain how fungi reproduce. ➔ I can explain how fungi grow and develop. ➔ I can use evidence to explain how fungi respond to stimuli ➔ I can use evidence to show how fungi grow and develop. Continued on next slide

Indicator 6.L.4A.1-Protists, Fungi & Plants

Indicator 6.L.4A.1 **Obtain** and **communicate** information to **support** claims that living organisms (1) obtain and use resources for energy, (2) respond to stimuli, (3) reproduce, and (4) grow and develop. (Continued)

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 52-54 See SEPUP TE	
• Obtain • Communicate • support	• living organisms • obtain and use resources for energy • respond to stimuli, • reproduce • grow and develop.	• Obtain by observation, scientific investigation, and research. • Explaining can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document. • Supporting claims can be in the form of evidence and trade-offs • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing the model.	➔ I can research and explain how plants obtain and use resources for energy. ➔ I can explain how plants respond to stimuli. ➔ I can explain how plants reproduce. ➔ I can explain how plants grow and develop. ➔ I can use evidence to explain how plants respond to stimuli ➔ I can use evidence to show how plants grow and develop.

Indicator 6.L.4A.2-Protists, Fungi & Plants

Indicator 6.L.4A.2 **Develop** and **use models** to **classify** organisms based on the current hierarchical taxonomic structure (including the kingdoms of protists, plants, fungi, and animals).

Scope		Clarification	Learning Targets
Skills • Develop models • Use models • Classify	Concepts • Organisms on current hierarchical taxonomic structure	Support Documents pgs 55-57 See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) which will be used to classify organisms. • When comparing and classifying students will sort, in a logical way, or find the categories to put them into. This can be done in charts, diagrams, illustrations, concept maps, T-charts,card sort, or webs. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can develop a model to show how plants are broken into groups based on characteristics. ➔ I can compare and contrast the internal structures of the two major groups of plants. ➔ I can use models to show how plants are broken into groups based on characteristics.

Indicator 6.L.5A.1-Protists, Fungi & Plants

Indicator 6.L.5A.1 **Analyze** and **interpret** data from observations to **compare** how the structures of protists (including euglena, paramecium, and amoeba) and fungi allow them to obtain energy and explore their environment.

Scope		Clarification	Learning Targets
Skills	Concepts	Support documents pgs 70-72	➔ I can identify the structures of protists and describe how they help protists obtain their energy and move.
• Analyze data • Interpret data • Compare	• Observation of structures of protists and fungi allow them to obtain energy and explore their environment.	See SEPUP TE • Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs. • When comparing and classifying students will sort, in a logical way, or find the categories to put them into. This can be done in charts, diagrams, illustrations, concept maps, T-charts,card sort, or webs.	➔ I can identify the structures of fungi and describe how they help fungi obtain their energy.

Indicator 6.L.5A.2-Protists, Fungi & Plants

Indicator 6.L.5A.2 **Analyze** and **interpret** data to **describe** how fungi respond to external stimuli (including temperature, light, touch, water, and gravity).

Scope		Clarification	Learning Targets
Skills • Analyze data • Interpret data • describe	Concepts • How fungi responds to external stimuli	Support Document pgs 73-74 See SEPUP TE • Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs. • Describing can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document.	➔ I can describe how fungi responds to temperature changes. ➔ I can describe how fungi responds to light changes. (phototropism) ➔ I can describe how fungi responds to touch. (thigmotropism) ➔ I can describe how fungi responds to water. (hydrotropism) ➔ I can describe how fungi responds to gravity. (gravitropism)

Indicator 6.L.5B.1-Protists, Fungi & Plants

Indicator 6.L.5B.1 **Construct** explanations of how the internal structures of vascular and nonvascular plants transport food and water.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 75-76	➔ I can explain the internal structures of vascular plants that transport food and water.
• Construct explanations	• How the internal structures of vascular and nonvascular plants transport food and water.	See SEPUP TE • Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams. • Students can develop models/drawings to describe the xylem and phloem move water and other nutrients. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing explanations	➔ I can explain the internal structures of nonvascular plants that transport food and water. ➔ I can identify the structures xylem and phloem. ➔ I can identify how water enters a plant.

Indicator 6.L.5B.2-Protists, Fungi & Plants

Indicator 6.L.5B.2 **Analyze** and **interpret** data to **explain** how the processes of photosynthesis, respiration, and transpiration work together to meet the needs of plants.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 77-79	➔ I can explain the process of photosynthesis.
• Analyze data • Interpret data • explain	• How the processes of photosynthesis, respiration, and transpiration work together to meet the needs of plants.	See SEPUP TE • Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs. • Explaining can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document.	➔ I can identify the following parts of a plant: chlorophyll, stomata, guard cells. ➔ I can identify the importance of glucose, oxygen, and carbon dioxide to the plant. ➔ I can explain the process of respiration. ➔ I can explain the process of transpiration.

Indicator 6.L.5B.3-Protists, Fungi & Plants

Indicator 6.L.5B.3 **Develop** and **use models** to **compare** structural adaptations and processes that flowering plants use for defense, survival and reproduction.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 80-82	➔ I can observe different structures of flowering plants and compare how they reproduce
• Develop models • Use models • compare	• Structural adaptations and processes that flowering plants use for defense, survival, and reproduction.	See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) which will be used to compare structural adaptations in flowering plants. • When comparing and classifying students will sort, in a logical way, or find the categories to put them into. This can be done in charts, diagrams, illustrations, concept maps, T-charts,card sort, or webs. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can observe different structures of flowering plants they have to defend themselves ➔ I can observe different structures of flowering plants they have to survive in their environment. ➔ I can identify the main parts of a flowering plant. ➔ I can identify adaptations in flowering plants.

Indicator 6.L.5B.4-Protists, Fungi & Plants

Indicator 6.L.5B.4 **Plan** and **conduct** controlled scientific investigations to **determine** how changes in environmental factors (such as air, water, light, minerals, or space) affect the growth and development of a flowering plant.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 83-84	➔ I can plan and conduct an experiment to show how changes in the environment (such as air, water, light, minerals, or space) affect how a flowering plant grows.
• Plan controlled scientific investigations • Conduct controlled scientific investigations • Determine	• environmental factors • growth and development of a flowering plant.	See SEPUP TE • Students will plan and construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams. • Answering questions can be in the form of an oral presentation, or a written document. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can identify the independent variables to show how flowering plants grow. ➔ I can write a testable question and hypothesis.

Indicator 6.L.5B.5-Protists, Fungi & Plants

Indicator 6.L.5B.5 **Analyze** and **interpret** data to **describe** how plants respond to external stimuli (including temperature, light, touch, water, and gravity).

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 85-87	➔ I can use data to describe how plants respond to external stimuli.
• Analyze data • Interpret data • describe	• How plants respond to external stimuli.	See SEPUP TE • Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs. • Describing can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document.	➔ I can use data from informational text to explain how plants respond to changes in their environment. ➔ I can make observations about growing plants and describe how they have grown in response to light, touch, water, and gravity.

Indicator 6.L.4A.1-Classification & Animals

Indicator 6.L.4A.1 **Obtain** and **communicate** information to **support** claims that living organisms (1) obtain and use resources for energy, (2) respond to stimuli, (3) reproduce, and (4) grow and develop.

Scope		Clarification	Learning Targets
Skills • Obtain information • Communicate information • Support claims	Concepts • Living organisms • Obtain and use resources for energy • Respond to stimuli • Reproduce • Grow and develop.	Support document pgs 52-54 See SEPUP TE • Obtain by observation, scientific investigation, and research. • Explaining can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document. • Supporting claims can be in the form of evidence and trade-offs • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing the model.	➔ I can use primary and secondary sources to gather information to support claims that living things have special characteristics and processes that are not present in nonliving things. ➔ I can identify stimuli and responses of animals. ➔ I can list examples of resources that animals need to survive.

Indicator 6.L.4A.2-Classification & Animals

Indicator 6.L.4A.2 **Develop** and **use** models to **classify** organisms based on the current hierarchical taxonomic structure (including the kingdoms of protists, plants, fungi, and animals).

Scope		Clarification	Learning Targets
Skills • Develop models • Use models • Classify	Concepts • Organisms • Hierarchical taxonomic structure • Kingdoms • Protists • Plants • Fungi • Animals	Support document 55-57 See SEPUP TE • Students will develop a model (concept map, slide deck, physical model, diagram etc.) which will be used to classify organisms. • When comparing and classifying students will sort, in a logical way, or find the categories to put them into. This can be done in charts, diagrams, illustrations, concept maps, T-charts,card sort, or webs. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for description prior to developing the model.	➔ I can develop a model to help me classify animals into the taxonomic structure within the Animal Kingdom. ➔ I can use a model to represent how biologists name and classify organisms based on similar structures. ➔ I can construct a model of a species' taxonomic structure. ➔ I can use a model of the kingdoms to identify the key characteristics of an organism within a particular kingdom. ➔ I can compare the contrast the internal structures of the different classes of animals.

Indicator 6.L.4B.1 -Classification & Animals

Indicator 6.L.4B.1 **Analyze** and **interpret** data related to the diversity of animals to **support claims** that all animals (vertebrates and invertebrates) share common characteristics.

Scope		Clarification	Learning Targets
Skills • Analyze data • Interpret data • Support claims	Concepts • All animals share common characteristics • Vertebrates • Invertebrates	Support Document pgs 58-60 See SEPUP TE • Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs. • Supporting claims can be in the form of evidence and trade-offs	➔ I can define diversity. ➔ I can identify the two groups (vertebrates and invertebrates) that include all phyla in the Animal Kingdom ➔ I can analyze data about animals and group them according to similarities. ➔ I can analyze data to support claims that all animals share common characteristics despite their diversity. ➔ Based on patterns in animal classification, I can determine the key characteristics of all animals including vertebrates and invertebrates.

Indicator 6.L.4B.2-Classification & Animals

Indicator 6.L.4B.2 **Obtain** and **communicate** information to **explain** how the structural adaptations and processes of animals allow for defense, movement, or resource obtainment.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 61-62	➔ I can use information from primary and secondary sources to explain how the special structures that animals have enable them to survive in their environment.
• Obtain information • Communicate information • Explain	• Structural adaptations • Processes • Defense • Movement • Resource obtainment	See SEPUP TE • Obtain by observation, scientific investigation, and research to communicate how the structural adaptations and processes of animals allows for defense, movement, resource obtainment. • Explaining can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing the model.	➔ I can explain how specific animal adaptations could be used for defense, movement, and/or resource obtainment (gathering food, water, and/or other resources).

Indicator 6.L.4B.3-Classification & Animals

Indicator 6.L.4B.3 **Construct** explanations of how animal responses (including hibernation, migration, grouping, and courtship) to environmental stimuli allow them to survive and reproduce.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Documents pgs 63-65	→ I can explain how animals responding to their environment are able to survive through hibernation.
• Construct explanations	• Animal responses • Environmental stimuli • Survive and reproduce • Sensory organs • Senses • Adaptations	See SEPUP TE • Construct explanations of phenomena using (1) primary or secondary scientific evidence and models, (2) conclusions from scientific investigations, (3) predictions based on observations and measurements, or (4) data communicated in graphs, tables, or diagrams. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing explanations.	→ I can explain how animals responding to their environment are able to survive and reproduce through migration. → I can explain how animals responding to their environment are able to survive and reproduce by grouping. → I can explain how animals responding to their environment are able to survive and reproduce through courtship. → I can use weather data to make predictions based on evidence of how animals will respond to changes in seasons. → I can analyze data from graphs and data tables, and use this evidence to predict whether animals will respond by hibernating, reproducing, and/or migrating.

Indicator 6.L.4B.4-Classification & Animals

Indicator 6.L.4B.4 **Obtain** and **communicate** information to **compare** and **classify** innate and learned behaviors in animals.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 66-67	➔ I can identify and generate examples of innate behaviors.
• Obtain information • Communicate information • Compare • Classify	• Innate behaviors • Learned behaviors	See SEPUP TE • Obtain by observation, scientific investigation, and research. • Explaining can be in the form of answers to a series of questions which require the use of the model to answer, an oral presentation, or a written document. • When comparing and classifying students will sort, in a logical way, or find the categories to put them into. This can be done in charts, diagrams, illustrations, concept maps, T-charts,card sort, or webs. • The audience can be the teacher, a partner, a group or the class. • Students should know the rubric for their required description prior to developing the model.	➔ I can identify and generate examples of learned behaviors. ➔ I can compare and classify innate and learned behaviors in animals. ➔ I can find evidence from primary and secondary sources to support the claim that animal behaviors can be learned or inherited. ➔ I can observe an animal's behavior and argue from evidence whether the behavior is innate or learned. ➔ I can find evidence from primary and secondary sources to explain why behaviors that are innate in some animals are learned in others.

Indicator 6.L.4B.5-Classification & Animals

Indicator 6.L.4B.5 **Analyze** and **interpret** data to **compare** how endothermic and ectothermic animals respond to changes in environmental temperature.

Scope		Clarification	Learning Targets
Skills	Concepts	Support Document pgs 68-69	➔ I can compare how endothermic and ectothermic animals respond to changes in environmental temperature.
• Analyze data • Interpret • compare	• Endothermic • Ectothermic • Animal responses • Environmental responses. • Response to temperature change	See SEPUP TE • Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation, graphing, or statistical analysis) to (1) reveal patterns and construct meaning or (2) support hypotheses, explanations, claims, or designs. • When comparing and classifying students will sort, in a logical way, or find the categories to put them into. This can be done in charts, diagrams, illustrations, concept maps, T-charts,card sort, or webs.	➔ I can explain how the different characteristics of endothermic and exothermic animals allow each group to survive temperature changes in their environment. ➔ I can collect and analyze data about the change in activity rate of ectothermic animals in environments of different temperatures. ➔ I can use collected data to explain how some animals survive extreme temperatures in their environment.

6th Grade Computer Science Standards

Digital Literacy	**Standard 1:** Use software applications to collaborate and create authentic products.	
	The student will:	
	6.DL.1.1	Use professional email protocol to communicate and share information with peers and teachers (e.g., addresses, subject line, body, salutations, closing).
	6.DL.1.2	Share documents created using word processing, presentation, and spreadsheet software via email attachments.
	6.DL.1.3	Use formulas in spreadsheets to perform real-world calculations (e.g., creating budgets).
	Standard 2: Understand risks and responsibilities of being a digital citizen.	
	The student will:	
	6.DL.2.1	Identify rules for safe internet use.
	6.DL.2.2	Identify appropriate use of social media (e.g., cyberbullying prevention).
	6.DL.2.3	Identify appropriate use of computing devices.
	Standard 3: Understand issues associated with appropriate use of personal digital information.	
	The student will:	
	6.DL.3.1	Define and identify personal digital information.
	6.DL.3.2	Identify consequences of inappropriate sharing of personal digital information.
	Standard 4: Demonstrate keyboarding speed and accuracy on a computing device.	
	The student will:	
	6.DL.4.1	Demonstrate proper keyboarding technique when keying letters, numbers, and symbols at a rate of 20 words per minute.

6th Grade Computer Science Standards

Computing Systems	**Standard 1:** Analyze the use of computing to solve relevant problems.	
	The student will:	
	6.CS.1.1	Identify and describe the key functional components (e.g., input devices, output devices, processor, operating system, software applications, memory, storage) of a computer.
	6.CS.1.2	Identify relevant problems and how they are solved using computer science and various types of computing devices (e.g., directions to a location can be obtained through Global Position Systems (GPS) and/or online maps).
	Standard 2: Examine how computing devices function.	
	The student will:	
	6.CS.2.1	Understand various ways software is acquired and installed.
	Standard 3: Evaluate various solutions to common hardware and software problems.	
	The student will:	
	6.CS.3.1	Identify the source of a problem using a systematic process (i.e., troubleshooting).

Networks and the Internet	**Standard 1:** Analyze various network structures and how data is transmitted.	
	The student will:	
	6.NI.1.1	Identify and define hardware required to connect to a network (e.g., connect a school tablet or computer to Wi-Fi, network, or internet).
	6.NI.1.2	Define an IP address and show an example.
	6.NI.1.3	Identify a Uniform Resource Locator (URL).
	6.NI.1.4	Define a packet and explain how they are used to transmit data across a network.
	Standard 2: Identify methods to protect data, information, and computing devices across networks.	
	The student will:	
	6.NI.2.1	Identify common security risks associated with using computer networks (e.g., compromised passwords, phishing, viruses).
	6.NI.2.2	Identify how individuals and organizations protect data and information from security risks associated with using computer networks.

6th Grade Computer Science Standards

Data and Analysis	**Standard 1:** Evaluate the storage and representation of data.	
	The student will:	
	6.DA.1.1	Identify the file extensions (e.g., .ppt, .pdf, .mp3) associated with software programs.
	Standard 2: Analyze how data is collected with both computational and non-computational tools and processes.	
	The student will:	
	6.DA.2.1	Explore real-world data collection (e.g., identification number at lunch; teacher taking attendance; grocery store shopping card).
	Standard 3: Analyze various ways to visually represent data.	
	The student will:	
	6.DA.3.1	Explain how large data sets are represented graphically (e.g., frequency plots, bar graphs).
	6.DA.3.2	Represent one set of numerical data (e.g., histograms, box plots, dot plots).

6th Grade Computer Science Standards

Algorithms and Programming	**Standard 1:** Design, evaluate, and modify simple algorithms (e.g., steps to make a sandwich; steps to a popular dance; steps for sending an email).	
	The student will:	
	6.AP.1.1	Recognize that there are multiple ways to sequence instructions that can lead to the same result.
	6.AP.1.2	Interpret pseudocode and flowcharts.
	Standard 2: Use and compare simple coding control structures (e.g., if-then, loops).	
	The student will:	
	6.AP.2.1	Select appropriate coding control structures to skip or repeat instructions.
	Standard 3: Decompose problems into subproblems and write code to solve the subproblems (i.e., break down a problem into smaller parts).	
	The student will:	
	6.AP.3.1	Discuss the parts of a program (e.g., components of creating a video game include keeping score, determining winners/losers, moving characters, designing game art, and advancing levels).
	Standard 4: Design and code programs to solve problems.	
	The student will:	
	6.AP.4.1	Use a beginner coding language (e.g., drag-and-drop, block-based) to design and code a simple program that solves a problem.
	Standard 5: Identify variables and compare the types of data stored as variables.	
	The student will:	
	6.AP.5.1	Recognize variables that represent information (e.g., age, first name).
	6.AP.5.2	Recognize variables can represent different types of data (e.g., numbers, words, colors, images).

6th Grade Computer Science Standards

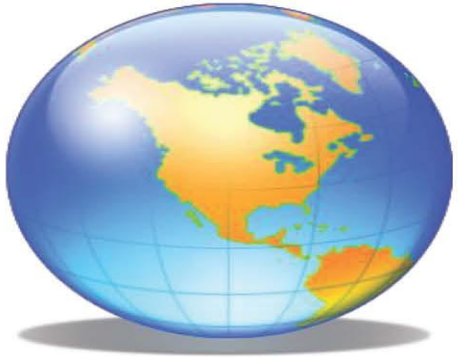
Impact of Computing	**Standard 1:** Evaluate the tradeoffs of computing in everyday activities.	
	The student will:	
	6.IC.1.1	Explore how computer science is and can be used to solve problems in students' daily lives (e.g., "Internet of Things," smart appliances, smart cars).
	6.IC.1.2	Discover positive and negative impacts of computing on society (e.g., personal, health, workforce, economy, education, culture, environment).
	Standard 2: Analyze various computing platforms used for communication.	
	The student will:	
	6.IC.2.1	Identify current communication methods and computing devices.
	Standard 3: Evaluate the tradeoffs in what and how information is shared digitally.	
	The student will:	
	6.IC.3.1	Identify guidelines for safely using the internet.
	Standard 4: Evaluate how legal and ethical issues shape computing practices.	
	The student will:	
	6.IC.4.1	Identify unethical and illegal behavior.

PROFILE OF THE South Carolina Graduate

WORLD-CLASS KNOWLEDGE

Rigorous standards in language arts and math for career and college readiness

Multiple languages, science, technology, engineering, mathematics (STEM), arts and social sciences



WORLD-CLASS SKILLS

Creativity and innovation

Critical thinking and problem solving

Collaboration and teamwork

Communication, information, media and technology

Knowing how to learn

LIFE AND CAREER CHARACTERISTICS

Integrity • Self-direction • Global perspective • Perseverance • Work ethic • Interpersonal skills

Adopted by: SC Arts Alliance, SC Arts in Basic Curriculum Steering Committee, SCASCD, SC Chamber of Commerce, SC Council on Competitiveness, SC Education Oversight Committee, SC State Board of Education, SC State Department of Education, TransformSC Schools and Districts.

transformSC tomorrow won't wait for our students

AN INITIATIVE OF SOUTH CAROLINA COUNCIL ON COMPETITIVENESS