Science Textbook Correlation to the
2018 Grade Six Science Standards of Learning Curriculum Framework

Publisher	**Text Grade 6 VA FOSS Comprehensive**	
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	Phone#	**E-mail**
Contact Mary Farrell	**603-579-3562**	**mary.farrell@schoolspecialty.com**

2018 Grade Six Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
6.2 The student will investigate and understand that the solar system is organized and the various bodies in the solar system interact. Key ideas include	This SOL is covered in the Grade 6 FOSS module – ***Planetary Science.***
a) matter is distributed throughout the solar system;	**FOSS Next Generation *Planetary Science*** **ATE** *Beyond the Moon – What's Out There?,* Investigation 6, Part 1 378-401 **ATE** *Beyond the Moon – Origins,* Investigation 6, Part 2, pp. 402-421 **ATE** *The Solar System – Where is the Water?,* Investigation 7, Part 3, pp. 461-468 **CT** *The Cosmos in a Nutshell,* pp. 67-79 (eBook) [Inv. 6.1] **CT** *A Tour of the Solar System*, pp. 86-96 (eBook) [Inv. 7.3] **CT** *Solar System Origin Card Set,* Online Activity, fossweb.com [Inv. 6.2]
b) planets have different sizes and orbit at different distances from the sun;	**FOSS Next Generation *Planetary Science*** **ATE** *The Solar System – Where Are the Planets?,* Investigation 7, Part 1, pp. 440-448 **CT** *A Tour of the Solar System*, pp. 86-96 (eBook) [Inv. 7.3] **CT** *Sun, Planets, and Satellites in the Solar System,* p. 135 (eBook)

c) gravity contributes to orbital motion; and	**FOSS Next Generation *Planetary Science*** **CT** *How Earth Got and Held on to Its Moon*, pp. 80-85 (eBook) [Inv.6.2] **CT** *A Tour of the Solar System*, pp. 86-96 (eBook) [Inv. 7.3] **CT** *Finding Exoplanets (The Wobble Method)*, pp. 112-113 (eBook) [Inv. 9.2]
d) the understanding of the solar system has developed over time.	**FOSS Next Generation *Planetary Science*** **ATE** *Beyond the Moon – Origins*, Investigation 6, Part 2, pp. 402-421 **CT** *Solar System Origin Card Sort*, Online Activity, fossweb.com [Inv. 6.2] **CT** *How Earth Got and Held onto Its Moon*, pp. 80-85 (eBook) [Inv. 6. 2] **CT** *Origin of the Moon and Tides*, Online Activity, fossweb.com [Inv. 6.2]

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6.3 The student will investigate and understand that there is a relationship between the sun, Earth, and the moon. Key ideas include	This SOL is covered in the Grade 6 FOSS module – ***Planetary Science.***
a) Earth has unique properties;	**FOSS Next Generation *Planetary Science*** **ATE** *Earth as a System – Earth's System*, Investigation 1, Part 2, pp. 128-140 **ATE** *The Solar System – Comparing Temperatures and Atmospheres*, Investigation 7, Part 2, pp. 449-460 **ATE** *The Solar System – Where is the Water?*, Investigation 7, Part 3, pp. 461-468 **CT** *Earth's Systems,* pp.3-7 (eBook) [Inv. 1.2] **CT** *Earth Landforms/Satellite Images*, pp. 146-153 (eBook) **CT** *A Tour of the Solar System*, pp. 86-96 (eBook) [Inv. 7.3] **CT** *Planet Landforms, Images*, pp. 154-165 (eBook) [Inv. 7.3] **CT** *Landforms and Search for Water*, Online Images, fossweb.com [Inv. 7.3]
b) the rotation of Earth in relationship to the sun causes day and night;	**FOSS Next Generation *Planetary Science*** **ATE** *Earth/Sun Relationship – Day and Night*, Investigation 2, Part 1, pp. 170-183 **ATE** *Phases of the Moon – Observed Patterns*, Investigation 4, Part 1, pp. 278-289 **CT** *Measuring Time with Calendars*, pp. 34-37 (eBook) [Inv. 4.2] **CT** *Day/Night*, Online Activity, fossweb.com [Inv. 2.1]

c) the movement of Earth and the moon in relationship to the sun causes phases of the moon;	**FOSS Next Generation *Planetary Science*** **ATE** *Earth as a System – Moon Watch*, Investigation 1, Part 3, pp. 141-150 **ATE** *Phases of the Moon – Observed Patterns*, Investigation 4, Part 1, pp. 278-289 **ATE** *Phases of the Moon – Moon-Phase Models,* Investigation 4, Part 2, pp. 290-299 **ATE** *Phases of the Moon – Moon-Phase Simulation*, Investigation 4, Part 3, pp. 300-307 **CT** *Earth's Moon*, pp. 42-48 (eBook) [Inv. 4.3] **CT** *Moon Orientation*, Online Activity, fossweb.com [Inv. 4.1] **CT** *Moon Puzzle*, Online Activities, fossweob.com [Inv. 4.2] **CT** *Phases of the Moon Simulation*, Online Activity, fossweb.com [Inv. 4.3]
d) Earth's tilt as it revolves around the sun causes the seasons; and	**FOSS Next Generation *Planetary Science*** **ATE** *Earth/Sun Relationship – Day and Night,* Investigation 2, Part 1, pp. 170-183 **ATE** *Earth/Sun Relationship – Summer Heat*, Investigation 2, Part 2, pp. 184-194 **ATE** Earth/Sun Relationship – Day Length, Investigation 2, Part 3, pp. 195-221 **CT** *Seasons on Earth*, pp. 15-21 (eBook) [Inv. 2.3] **CT** *Day/Night Simulation*, Online Activity, fossweb.com [Inv. 2.1] **CT** *Seasons*, Online Activity, fossweb.com [Inv. 2.3]
e) the relationship between Earth and the moon is the primary cause of tides.	**FOSS Next Generation *Planetary Science*** **ATE** *Beyond the Moon – Origins*, Investigation 6, Part 2, pp. 402-421 **CT** *How Earth Got and Held onto Its Moon*, pp. 80-85 (eBook) [Inv. 6.2] **CT** *Tides,* Online Activity, fossweb.com [Inv. 6.2]

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2018 Grade Six Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
6.4 The student will investigate and understand that there are basic sources of energy and that energy can be transformed. Key ideas include	This SOL is covered in the Grade 6 FOSS module – ***Weather and Water.***
a) the sun is important in the formation of most energy sources on Earth;	**FOSS Next Generation *Weather and Water*** **ATE** *Climate Over Time – The Role of Carbon Dioxide*, Investigation 9, Part 2, pp. 623-642 **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-2 **CT** *Renewable and Nonrenewable Energy Sources,* pp. 15-22 (AVA 6.E) [Inv. 9.2]
b) Earth's energy budget relates to living systems and Earth's processes;	**FOSS Next Generation *Weather and Water*** **ATE** *Climate Over Time – The Role of Carbon Dioxide*, Investigation 9, Part 2, pp. 623-642 **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-2 **CT** *Renewable and Nonrenewable Energy Sources,* pp. 15-22 (AVA 6.E) [Inv. 9.2]
c) radiation, conduction, and convection distribute energy; and	**FOSS Next Generation *Weather and Water*** **ATE** *Convection***–** Investigation 3, Parts 2-3, pp. 264-295 **ATE** *Forces* – Investigation 4, Parts 2-3, pp. 323-358 **ATE** *Conduction – Fluid Conduction*, Investigation 5, Part 1, pp. 374-387

	ATE *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-2 **CT** *Convection*, pp. 51-52 (eBook) [Inv. 3.3] **CT** *Heating the Atmosphere*, pp. 69-75 (eBook) [Inv. 6.1] **CT** *Wind on Earth*, pp. 76-84 (eBook) [Inv. 6.3] **CT** *Energy Transfer: Conduction, Radiation, Convection*, Online Activity, fossweb.com [Inv. 5.1]
d) energy transformations are important in energy usage.	**FOSS Next Generation *Weather and Water*** **ATE** *Climate Over Time – The Role of Carbon Dioxide,* Investigation 9, Part 2, pp. 623-642 **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-2 **CT** *Renewable and Nonrenewable Energy Sources*, pp. 15-22 (AVA 6.E) [Inv. 9.2]

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2018 Kindergarten Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
6.5 The student will investigate and understand that all matter is composed of atoms. Key ideas include	This SOL is covered in the Grade 6 FOSS module – ***Weather and Water***.
a) atoms consist of particles, including electrons, protons, and neutrons;	**FOSS Next Generation *Weather and Water*** **ATE** *Atoms and Molecules*, Investigation 1, Part 3, pp. 158-177 **ATE** *What is the Weather?* - AVA 6.B: *Atoms and Molecules*, Inv. 1, Part 3 (after step 11), pp. 6-8 **CT** *Atoms and Molecules*, Online Video, Investigation 1, Part 3
b) atoms of a particular element are similar but differ from atoms of other elements;	**FOSS Next Generation *Weather and Water*** **ATE** *Atoms and Molecules*, Investigation 1, Part 3, pp. 158-177 **ATE** *What is the Weather?* - AVA 6.B: *Atoms and Molecules*, Inv. 1, Part 3 (after step 11), pp. 6-8 **CT** *Atoms and Molecules*, Online Video, Investigation 1, Part 3
c) elements may be represented by chemical symbols;	**FOSS Next Generation *Weather and Water*** **ATE** *Atoms and Molecules*, Investigation 1, Part 3, pp. 158-177 **ATE** *What is the Weather?* - AVA 6.B: *Atoms and Molecules*, Inv. 1, Part 3 (after step 11), pp. 6-8 **CT** *Atoms and Molecules*, Online Video, fossweb.com [Inv. 1.3]

d) two or more atoms interact to form new substances, which are held together by electrical forces (bonds);	**FOSS Next Generation *Weather and Water*** **ATE** *Atoms and Molecules*, Investigation 1, Part 3, pp. 158-177 **ATE** *What is the Weather?* - AVA 6.B: *Atoms and Molecules*, Inv. 1, Part 3 (after step 11), pp. 6-8 **CT** *Atoms and Molecules*, Online Video, fossweb.com [Inv. 1.3]
e) compounds may be represented by chemical formulas;	**FOSS Next Generation *Weather and Water*** **ATE** *Atoms and Molecules*, Investigation 1, Part 3, pp. 158-177 **ATE** *What is the Weather?* - AVA 6.B: *Atoms and Molecules*, Inv. 1, Part 3 (after step 11), pp. 6-8 **CT** *Atoms and Molecules*, Online Video, fossweb.com [Inv. 1.3]
f) chemical equations can be used to model chemical changes; and	**FOSS Next Generation *Weather and Water*** **ATE** *Atoms and Molecules*, Investigation 1, Part 3, pp. 158-177 **ATE** *What is the Weather?* - AVA 6.B: *Atoms and Molecules*, Inv. 1, Part 3 (after step 11), pp. 6-8 **CT** *Atoms and Molecules*, Online Video, fossweb.com [Inv. 1.3]
g) a few elements comprise the largest portion of the solid Earth, living matter, the oceans, and the atmosphere.	**FOSS Next Generation *Weather and Water*** **ATE** *What is Weather – Earth's Atmosphere*, Investigation 1, Part 3, pp. 158-177 **ATE** *What is the Weather?* - AVA 6.B: *Atoms and Molecules*, Inv. 1, Part 3 (after step 11), pp. 6-8 **CT** *What's in the Air?,* pp. 18-23 (eBook) [Inv. 1.3]

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STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
6.6 The student will investigate and understand that water has unique physical properties and has a role in the natural and human-made environment. Key ideas include	This SOL is covered in the Grade 6 FOSS modules – ***Planetary Science*** and ***Weather and Water.***
a) water is referred to as the universal solvent;	**FOSS Next Generation *Planetary Science*** **CT** *Stormwater Runoff*, Video, fossweb.com [AVA: 6.F] **CT** *Sediment*, Video, fossweb.com [AVA: 6.F] **CT** *Testing for Bacteria in Virginia*, fossweb.com [AVA: 6.F]
b) water has specific properties;	**FOSS Next Generation *Weather and Water*** **ATE** *Water in the Air – Is Water Really There*, Investigation 7, Part 1, pp. 498-506 **ATE** *Water in the Air – Phase Change and Energy Transfer*, Investigation 7, Part 2, pp. 507-515 **ATE** *Water in the Air – Clouds and Precipitation*, Investigation 7, Part 3, pp. 516-530 **CT** *Animal Rains*, pp, 87-90, (eBook) [Inv. 7.3] **CT** *Particles in Solids, Liquids, and Gases Simulation*, Online Activity, fossweb.com [Inv. 5.1]
c) thermal energy has a role in phase changes;	**FOSS Next Generation *Weather and Water*** **ATE** *Radiation – Heating the Earth*, Investigation 4, Part *3*, pp. 340-358

d) water has a role in weathering;	**FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Inv. 7, Part 4 (after), pp. 23-24
e) large bodies of water moderate climate; and	**FOSS Next Generation *Weather and Water*** **ATE** *The Water Planet* – AVA 6.D: *Virginia Climate Data*, Inv. 8, Part 3 (during step 4), pp. 10-12 **ATE** *Radiation – Latitude*, Investigation 4, Part 1, pp. 312-322 **ATE** *Radiation – Heating Earth,* Investigation 4, Part 3, pp. 340-358 **ATE** *The Water Planet – Ocean Climate*, Investigation 8, Part 3, pp. 581-595 **CT** *Wind on Earth*, pp. 76-84, (eBook) [Inv. 6. 3] **CT** *Oceans Currents and Gyres*, pp. 96-102 (eBook) [Inv. 8. 2] **CT** *El Nino*, pp. 103-104, (eBook) [Inv. 8.3]
f) water is important for agriculture, power generation, and public health.	**FOSS Next Generation *Weather and Water*** **CT** *Oceans Currents and Gyres*, pp. 96-102 (eBook) [Inv. 8.2] **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System – Changing Systems*, Investigation 7, Part 4, pp. 469-489 **CT** *Earth's Changing Systems*, pp. 97-104, (eBook) [Inv. 7.4] **CT** *Stormwater Runoff*, Video, fossweb.com [AVA: 6.F] **CT** *Sediment*, Video, fossweb.com [AVA: 6.F] **CT** *Testing for Bacteria in Virginia*, fossweb.com [AVA: 6.F] **CT** *FOSS Virginia Watershed Study Center*, Online Resource, fossweb.com [AVA 6.F]

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6.7 The student will investigate and understand that air has properties and that Earth's atmosphere has structure and is dynamic. Key ideas include	This SOL is covered in the Grade 6 FOSS module – ***Weather and Water***
a) air is a mixture of gaseous elements and compounds;	**FOSS Next Generation *Weather and Water*** **ACT** *What is Weather – The Air Around Us*, Investigation 1, Part 2, pp. 142-157 **CT** *What's in the Air***,** pp. 18-23 (eBook) [Inv. 1.3] **CT** *Gas in a Syringe*, Online Activity, fossweb.com [Inv. 1.2]
b) the atmosphere has physical characteristics;	**FOSS Next Generation *Weather and Water*** **ATE** *What is Weather – Earth's Atmosphere*, Investigation 1, Part 3, pp. 158-177 **ATE** *Water in the Air – Clouds and Precipitation*, Investigation 7, Part 3, pp. 516-530 **CT** *A Thin Blue Veil*, pp. 24-31 (eBook) [Inv. 1.3] **CT** *Heating the Atmosphere*, pp. 69-75, (eBook) [Inv. 6.1] **CT** *Animal Rains*, pp. 87-90, (eBook) [Inv. 7.3] **CT** *Weather Balloons and the Radiosonde*, pp. 85-86, (eBook) [Inv. 7.3] **CT** *Elevator to Space Simulation*, Online Activity, fossweb.com [Inv. 1.3]

c) properties of the atmosphere change with altitude;	**FOSS Next Generation *Weather and Water*** **ATE** *What is Weather – Earth's Atmosphere*, Investigation 1, Part 3, pp. 158-177 **ATE** *Air Flow – Atmospheric Heating*, Investigation 6, Part 1, pp. 434-448 **ATE** *Air Flow – Local Winds*, Investigation 6, Part 2, pp.449-456 **ATE** *Air Flow – Global Winds*, Investigation 6, Part 3, pp. 457-481 **CT** *A Thin Blue Veil*, pp. 24-31 (eBook) [Inv. 1.3] **CT** *Heating the Atmosphere*, pp. 69-75, (eBook) [Inv. 6.1] **CT** *Weather Balloon Launch, Simulation*, Multimedia, fossweb.com [Inv. 2.1] **CT** *Elevator to Space Simulation*, Online Activity, fossweb.com [Inv. 1.3]
d) there is a relationship between air movement, thermal energy, and weather conditions;	**FOSS Next Generation *Weather and Water*** **ATE** *What is Weather? – Into the Weather*, Investigation 1, Part 1, pp. 128-141 **ATE** *Air Flow – Local Winds*, Investigation 6, Part 2, pp.449-456 **ATE** *Air Flow – Global Winds*, Investigation 6, Part 3, pp. 457-481 **CT** Severe Weather, pp. 2-7 (eBook) [Inv. 1.1] **CT** *Hurricanes and Tornadoes*, Video, fossweb.com [Inv. 1.1] **CT** *Weather Maps, Simulation*, Multimedia, fossweb.com [Inv. 10.1] **CT** *Local Wind*, Online Activity, fossweb.com [Inv. 6.2] **CT** *Wind on Earth*, pp. 76-84 (eBook) [Inv. 6.3]
e) atmospheric measures are used to predict weather conditions; and	**FOSS Next Generation *Weather and Water*** **ATE** *Air Pressure and Wind – Air-Pressure Inquiry*, Investigation 2, Part 1, pp. 198-219 **ATE** *Meteorology – Weather Maps*, Investigation 10, Part 1, pp. 670-682 **ATE** *Meteorology – Weather Maps*, Investigation 10, Part 1, pp. 670-682 **CT** *Gas in a Syringe/Weather-Balloon Simulation*, Multimedia, fossweb.com [Inv. 2.1] **CT** *What is Air Pressure?*, pp. 32-40 (eBook) Investigation 2, Part 1 **CT** *Barometer in a Bottle*, Online Video, fossweb.com [Inv. 2.1]

f) weather maps give basic information about fronts, systems, and weather measurements.	**FOSS Next Generation *Weather and Water*** **ATE** *Air Pressure and Wind*, Investigation 2, Part 2, pp. 220-229 **ATE** *Meteorology – Weather Maps*, Investigation 10, Part 1, pp. 670-682 **CT** *Fronts*, pp. 132-133 (eBook) **CT** *Weather Maps Simulation*, Online Activity, fossweb.com [Inv. 10.1]

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6.8 The student will investigate and understand that land and water have roles in watershed systems. Key ideas include	This SOL is covered in the Grade 6 FOSS modules – ***Weather and Water*** and ***Planetary Science.***
a) a watershed is composed of the land that drains into a body of water;	**FOSS Next Generation *Weather and Water*** **ATE** *The Water Planet* **–** AVA 6.C: *Watershed Introduction*, Inv. 8, Part 1 (after step 14), p. 9 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Inv. 7, Part 4 (after), pp. 23-24 **CT** *Watershed Learning Video*, Video, fossweb.com [AVA: 6:F] **CT** *FOSS Virginia Watershed Study Center*, Online Resource, fossweb.com [AVA 6.F] **CT** *Restoring the Chesapeake Bay Watershed*, Online video, fossweb.com [AVA 6.F] **CT** *Population Growth*, Online video, fossweb.com [AVA 6.F] **CT** *Intro to Watersheds and Water Pollution (Groundswell)*, Online video, fossweb.com [AVA 6.F]

	CT *Managing Excess Nutrients (Groundswell)*, Online video, fossweb.com [AVA 6.F] **CT** *Water Sample Data Map*, Online Activity, fossweb.com [AVA 6.F]
b) Virginia is composed of multiple watershed systems which have specific features;	**FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Inv. 7, Part 4 (after), pp. 23-24 **CT** *Watershed Learning Video*, Video, fossweb.com [AVA: 6:F] **CT** *FOSS Chesapeake Bay Watershed Study Center*, Online Resource, [AVA: 6:F]
c) the Chesapeake Bay is an estuary that has many important functions; and	**FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Inv. 7, Part 4 (after), pp. 23-24 **CT** *FOSS Chesapeake Bay Watershed Study Center*, Online Resource, [AVA: 6:F] **CT** *FOSS Virginia Watershed Study Center*, Online Resource, fossweb.com [AVA 6.F] **CT** *Water Sample Data Map*, Online Activity, fossweb.com [AVA 6.F]
d) natural processes, human activities, and biotic and abiotic factors influence the health of a watershed system.	**FOSS Next Generation *Weather and Water*** **ATE** *The Water Planet* **–** AVA 6.C: *Watershed Introduction*, Inv. 8, Part 1 (after step 14), p. **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Inv. 7, Part 4 (after), pp. 23-24 **CT** *Watershed Learning Video*, Video, fossweb.com [AVA: 6:F] **CT** *FOSS Virginia Watershed Study Center*, Online Resource, fossweb.com [AVA 6.F] **CT** *Restoring the Chesapeake Bay Watershed*, Online video, fossweb.com [AVA 6.F] **CT** *Population Growth*, Online video, fossweb.com [AVA 6.F]

	CT *Intro to Watersheds and Water Pollution (Groundswell)*, Online video, fossweb.com [AVA 6.F] **CT** *Managing Excess Nutrients (Groundswell),* Online video, fossweb.com [AVA 6.F] **CT** *FOSS Virginia Watershed Study Center,* Online Resource, fossweb.com [AVA 6.F] **CT** *Water Sample Data Map*, Online Activity, fossweb.com [AVA 6.F]

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6.9 The student will investigate and understand that humans impact the environment and individuals can influence public policy decisions related to energy and the environment. Key ideas include	This SOL is covered in the Grade 6 FOSS modules – ***Variables and Design, Weather and Water,*** and ***Planetary Science.***
a) natural resources are important to protect and maintain;	**FOSS Next Generation *Variables and Design*** **ATE** *Real-World Problems* – AVA 6.A: *Environmental Engineering*, Inv. 3, Part 1 (after step 4), pp. 4-5 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS NEXT GENERATION *Weather and Water*** **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-22 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Investigation 7, Part 4 (after), pp. 23-24 **ATE** *The Solar System – Changing Systems*, Investigation 7, Part 4, pp. 469-489 **CT** *Earth's Changing Systems*, (eBook) pp. 97-104, Investigation 7 Part 4 **CT** *Watershed Learning Video*, Video, fossweb.com [AVA: 6.F]

	CT *FOSS Virginia Watershed Study Center*, Online Resource, fossweb.com [AVA 6.F] **CT** *Restoring the Chesapeake Bay Watershed*, Online video, fossweb.com [AVA 6.F] **CT** *Population Growth*, Online video, fossweb.com [AVA 6.F] **CT** *Intro to Watersheds and Water Pollution (Groundswell)*, Online video, fossweb.com [AVA 6.F] **CT** *Managing Excess Nutrients (Groundswell)*, Online video, fossweb.com [AVA 6.F] **CT** *FOSS Virginia Watershed Study Center*, Online Resource, fossweb.com [AVA 6.F]
b) renewable and nonrenewable resources can be managed;	**FOSS Next Generation *Variables and Design*** **ATE** *Real-World Problems* – AVA 6.A: *Environmental Engineering*, Inv. 3, Part 1 (after step 4), pp. 4-5 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Weather and Water*** **ATE** *Climate Over Time – The Role of Carbon Dioxide*, Investigation 9, Part 2, pp. 623-642 **ATE** *The Solar System – Changing Systems*, Investigation 7, Part 4, pp. 469-489 **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-22 **(Note: This is foundational for VA SOL 6.9 a-f)** **CT** *Climates: Past, Present, and Future*, pp. 105-110, (eBook), [Inv. 9.2] **CT** *Earth's Changing Systems*, (eBook) pp. 97-104, Investigation 7 Part 4 **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Investigation 7, Part 4 (after), pp. 23-24

c) major health and safety issues are associated with air and water quality;	**FOSS Next Generation *Variables and Design*** **ATE** *Real-World Problems* – AVA 6.A: *Environmental Engineering*, Inv. 3, Part 1 (after step 4), pp. 4-5 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Weather and Water*** **ATE** *The Solar System – Changing Systems*, Investigation 7, Part 4, pp. 469-489 **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-22 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Investigation 7, Part 4 (after), pp. 23-24 **CT** *Earth's Changing Systems*, (eBook) pp. 97-104, Investigation 7 Part 4 **CT** *Stormwater Runoff*, Video, fossweb.com [AVA: 6.F] **CT** *Sediment*, Video, fossweb.com [AVA: 6.F] **CT** *Testing for Bacteria in Virginia*, fossweb.com [AVA: 6.F]
d) major health and safety issues are related to different forms of energy;	**FOSS Next Generation *Variables and Design*** **ATE** *Real-World Problems* – AVA 6.A: *Environmental Engineering*, Inv. 3, Part 1 (after step 4), pp. 4-5 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS NEXT GENERATION *Weather and Water*** **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-22 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Investigation 7, Part 4 (after), pp. 23-24

	ATE *Climate Over Time – The Role of Carbon Dioxide*, Investigation 9, Part 2, pp. 623-642 **CT** *Climates: Past, Present, and Future*, pp. 105-110, (eBook), [Inv. 9.2]
e) preventive measures can protect land-use and reduce environmental hazards; and	**FOSS Next Generation *Variables and Design*** **ATE** *Real-World Problems* – AVA 6.A: *Environmental Engineering*, Inv. 3, Part 1 (after step 4), pp. 4-5 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS NEXT GENERATION *Weather and Water*** **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-22 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Investigation 7, Part 4 (after), pp. 23-24 **CT** *Water Sample Data Map*, Online Activity, fossweb.com [AVA 6.F] **CT** *Forest Buffers*, Online Video, fossweb.com [AVA 6.F] **CT** *FOSS Virginia Watershed Study Center*, Online Resource, fossweb.com [AVA 6.F]

f) there are cost/benefit tradeoffs in conservation policies.	**FOSS Next Generation *Variables and Design*** **ATE** *Real-World Problems* – AVA 6.A: *Environmental Engineering*, Inv. 3, Part 1 (after step 4), pp. 4-5 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS NEXT GENERATION *Weather and Water*** **ATE** *Climate Over Time* – AVA 6.E: *Energy Budget and Use*, Inv. 9 Part 2 (after step 14), pp. 13-22 **(Note: This is foundational for VA SOL 6.9 a-f)** **FOSS Next Generation *Planetary Science*** **ATE** *The Solar System* – AVA 6.F: *Chesapeake Bay Watershed*, Investigation 7, Part 4 (after), pp. 23-24 **CT** *FOSS Virginia Watershed Study Center*, Online Resource, fossweb.com [AVA 6.F]

Science Textbook Correlation to the
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	Phone#	**E-mail**
Contact Mary Farrell	**603-579-3562**	**mary.farrell@schoolspecialty.com**

2018 Life Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
LS.2 The student will investigate and understand that all living things are composed of one or more cells that support life processes, as described by the cell theory. Key ideas include\	This SOL is covered in the Life Science FOSS modules –***Diversity of Life*** and ***Heredity and Adaptations.***
a) the development of the cell theory demonstrates the nature of science;	**FOSS Next Generation *Diversity of Life*** **ATE** *The Microscope – Meet the Microscope*, Investigation 2, Part 1, pp. 170-183 **ATE** *The Microscope – Microscope Life*, Investigation 2, Part 3, pp. 194-205 **ATE** *The Cell – Discovering Cells*, Investigation 3, Part 1, pp. 224-235 **CT** *Lab Techniques: Making a Wet Mount*, Video, fossweb.com [Inv. 2.1] **CT** *Virtual Microscope*, Online Activity, fossweb.com [Inv. 2.1] **CT** *Levels of Complexity: Plant Cell*, Online Activity, fossweb.com [Inv. 3.1] **CT** *Microscope Measurements*, Online Activity, fossweb.com [Inv. 2.2]

b) cell structure and organelles support life processes;	**FOSS Next Generation *Diversity of Life*** **ATE** *The Microscope – Microscope Life*, Investigation 2, Part 3, pp. 194-205 **ATE** *The Cell* – Investigation 3, Parts 1-4, pp. 224-264 **ATE** *Plants: The Vascular System – Transpiration and Photosynthesis*, Inv. 5, Part 3, pp. 414-433 **CT** *The Amazing Paramecium*, pp. 14-19 (eBook) [Inv. 3.2] **CT** *Cells*, pp. 20-27 (eBook) [Inv. 3.4] **CT** *How Big Are Cells?*, pp. 110-113 [Inv. 3.4] **CT** *Bacteria around Us*, pp. 28-35 (eBook) [Inv. 4.2] **CT** *Levels of Complexity Research Pages*, pp. 114-118 (eBook) [Inv. 4.1]
c) similarities and differences between plant and animal cells determine how they support life processes;	**FOSS Next Generation *Diversity of Life*** **ATE** *The Cell – Discovering Cells,* Investigation 3, Part 1, pp. 224-235 **ATE** *The Cell – Human Cheek Tissue,* Investigation 3, Part 4, pp. 259-279 **CT** *Levels of Complexity: Plant Cell*, Online Resource, fossweb.com [Inv. 3.1] **CT** *Cells*, pp. 20-27 (eBook) [Inv. 3.4] **CT** *How Big Are Cells?*, pp. 110-113 [Inv. 3.4]
d) cell division is the mechanism for growth and reproduction; and	**FOSS Next Generation *Diversity of Life*** **ATE** *The Microscope – Microscope Life*, Investigation 2, Part 3, pp. 194-205 **ATE** *The Cell – Microworlds*, Investigation 3, Part 3, pp.251-259 **ATE** *Plant Reproduction and Growth – Flowering Plant Production*, pp. 475-489, Inv. 6, Part 3 **CT** *The Making of a New Plant*, pp. 62-64 (eBook), [Inv. 6.3] **CT** *Nonflowering Plants*, Online Slideshow, fossweb.com [Inv. 6.3] **CT** *Viruses: Living or Nonliving?*, pp. 95-100 (eBook), [Inv. 9.2] **FOSS Next Generation *Heredity and Adaptations*** **ATE** *Heredity – Inheriting Traits,* Investigation 2, Part 2, pp.176-199 **CT** *Understanding Heredity*, pp. 22-27 (eBook) [Inv. 2.2]

e) cellular transport (osmosis and diffusion) is important for life processes.	**FOSS Next Generation *Diversity of Life.*** **ATE** *Plants: The Vascular System – What happened to the Water?,* Inv. 5, Part 1, pp. 390-401 **ATE** *Plants: The Vascular System – Looking at Plant Structures,* Inv. 5, Part 2, pp. 402-414 **ATE** *Plants: The Vascular System – Looking at Plant Structures,* Inv. 5, Part 3, pp. 415-433 **CT** *The Water-Conservation Problem,* pp. 44-49 (eBook) [Inv. 5.2] **CT** *Water, Light, and Energy,* pp. 50-57 (eBook) [Inv. 5.3] **CT** *Database: Stem Collector,* Online Resource, fossweb.com [Inv. 5.2] **CT** *Database: Stomata Collection,* Online Resource, fossweb.com [Inv. 5.2]

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2018 Life Standards of Learning	
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LS.3 The student will investigate and understand that there are levels of structural organization in living things. Key ideas include	This SOL is covered in the Life Science FOSS module – ***Diversity of Life.***
a) patterns of cellular organization support life processes;	**FOSS Next Generation *Diversity of Life*** **ATE** *Domains – Comparing Living Things*, Investigation 4, Part 1, pp. 300-318 **ATE** *Domains – Bacteria*, Investigation 4, Part 2, pp. 319-347 **ATE** *Domains – Fungi*, Investigation 4, Part 3, pp. 348-361 **ATE** *Domains – Archaea: The Three Domains*, Investigation 4, Part 4, pp. 362-373 **CT** *Levels of Complexity Research Pages*, pp. 114-118 (eBook) [Inv. 4.1] **CT** Levels of Complexity Card Sort, Online Activity, fossweb.com [Inv.4.1] **CT** *Levels of Complexity*: Bacterial Cell, Online Activity, fossweb.com [Inv. 4.2] **CT** *Database: Levels of Complexity*, Online Resource, fossweb.com [Inv. 8.2]
b) unicellular and multicellular organisms have comparative structures; and	**FOSS Next Generation *Diversity of Life*** **ATE** *The Cell – Paramecia*, Investigation 3, Part 2, pp. 238-250 **ATE** *The Cell – Microworlds*, Investigation 3, Part 3, pp. 251-258 **ATE** *Domains – Bacteria*, Investigation 4, Part 2, pp. 319-347 **ATE** *Domains – Fungi*, Investigation 4, Part 3, pp. 348-361 **ATE** *Domains – Archaea: The Three Domains*, Investigation 4, Part 4, pp. 362-373

	CT *Lab Techniques: Preparing a Paramecia Wet-Mount Slide*, Video, fossweb.com **[**Inv. 3.1] **CT** *Database: Paramecium 3, 4, and 5,* Online Resource, fossweb.com [Inv. 3, Part 2] **CT** *Levels of Complexity: Protist Cell*, Online Resource, fossweb.com [Inv. 3, Part 2]
c) similar characteristics determine the classification of organisms.	**FOSS Next Generation *Diversity of Life*** **ATE** *Domains* –Investigation 4, Parts 1-4, pp. 300-373, **CT** *Levels of Complexity Card Sort*, Online Activity, fossweb.com [Inv. 4.1] **CT** *Levels of Complexity: Bacteria Cell,* Online Resource, fossweb.com [Inv. 4.2] **CT** *Levels of Complexity: Fungal Cell*, Online Resource, fossweb.com [Inv. 4.3] **CT** *Archaea Family Album*, Online Science Resource, fossweb.com [Inv. 4.4] **CT** *Levels of Complexity: Archaean Cell/The Three Domains of Life,* Online Resources, fossweb.com [Inv. 4.4] **CT** *Classification History*, Online Slideshow, fossweb.com [Inv. 4.4]

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2018 Life Science Standards of Learning	
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LS.4 The student will investigate and understand that there are chemical processes of energy transfer which are important for life. Key ideas include	This SOL is covered in the Life Science FOSS modules –***Diversity of Life*** and ***Populations and Ecosystems.***
a) photosynthesis is the foundation of virtually all food webs; and	**FOSS Next Generation *Diversity of Life*** **ATE** *Plants: The Vascular System – Transpiration and Photosynthesis,* Inv. 5, Part 3, pp. 414-433 **CT** *Water, Light, and Energy*, pp. 50-57 (eBook) [Inv.5.3] **FOSS Next Generation *Populations and Ecosystems*** **ATE** *Producers – Growing Producers*, Investigation 5, Part 1, pp. 354-367 **ATE** *Producers – Biomass and Producers,* Investigation 5, Part 2, pp. 368-382 **ATE** *Producers – Ecoscenario Producers,* Investigation 5, Part 3, pp. 383-387 **ATE** *Producers – Energy Transfer from Food,* Investigation 5, Part 4, pp. 387-405 **CT** *Energy and Life,* pp. 51-55 (eBook) [Inv. 5.2] **CT** *Where Does Food Come From?*, pp. 56-61 (eBook) [Inv. 5.2]
b) photosynthesis and cellular respiration support life processes.	**FOSS Next Generation *Diversity of Life*** **ATE** *Plants: The Vascular System,* Investigation, 5, Parts 1-3, pp. 390-433 **CT** *Database: Stem Collection,* Online Resource, fossweb.com Investigation 5, Part 2

	CT *Database: Somata Collection*, Online Resource, fossweb.com Investigation 5, Part 2 **CT** *Plant Vascular System, Online Activity*, fossweb.com Investigation 5, Part 3 **CT** *Water, Light, and Energy*, pp. 50-57 (eBook) [Inv. 5.3] **FOSS Next Generation *Populations and Ecosystems*** **ATE** *Producers – Biomass and Producers*, Investigation 5, Part 2, pp. 368-382 **ATE** *Producers – Ecoscenario Producers*, Investigations 5, Part 3, pp. 383-387 **CT** *Energy and Life and Where Does Food Come From?* pp. 51-55 (eBook) [Inv. 5.2]

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LS.5 The student will investigate and understand that biotic and abiotic factors affect an ecosystem. Key ideas include	This SOL is covered in the Life Science FOSS modules –***Diversity of Life*** and ***Populations and Ecosystems.***
a) matter moves through ecosystems via the carbon, water, and nitrogen cycles;	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Mono Lake – Ecoscenario Food Webs*, Investigation 3, Part 3, pp. 272-281 **ATE** *Following the Energy – Decomposers*, Investigation 6, Part 4, pp. 470-479 **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Inv. 2, Part 3, pp. 4-5 **CT** *Life in a Community*, pp. 13-15 (eBook) [Inv. 2.1] **CT** *Defining a Biome*, pp. 31-34 (eBook) [Inv. 2.3] **CT** *Decomposers*, (eBook) pp. 83-86, Investigation 6, Part 4
b) energy flow is represented by food webs and energy pyramids; and	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life – Ecosystem Card Sort*, Investigation 2, Part 1, pp. 184-193, **ATE** *Mono Lake* – Investigation 3, Parts 2-3, pp. 259-281 **ATE** *Producers – Ecoscenario Producers*, Investigation 5, Part 4, pp. 383-387 **ATE** *Following the Energy* – Investigation 6, Parts 1-3, pp. 420-449 **CT** *Rachel Carson and the Silent Spring* (eBook) pp. 70-74, [Inv. 6.2] **CT** *Trophic Levels*, (eBook), pp. 75-82, [Inv. 6.3] **CT** *The Mono Lake Story*, Video, fossweb.com [Inv. 3.1] CT ***Mono Lake Food Web*, Video, fossweb.com [Inv. 3.2]**

c) relationships exist among producers, consumers, and decomposers.	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Following the Energy – Decomposers*, pp. 470-479, Investigation 6, Part 4 **ATE** *Human Impact – Biodiversity* Investigation 8, Part 1, pp. 562-582 **ATE** *Human Impact – Mono Lake Revisited*, Investigation 8, Part 3, 591-605 **CT** *Decomposers*, pp. 83-86 (eBook), [Inv. 6.4] **CT** *Biodiversity*, pp. 100-107 (eBook) [Inv. 8.1] **CT** *Mono Lake in the Spotlight*, (eBook) pp. 118-122, Investigation 8, Part 3

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STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
LS.6 The student will investigate and understand that populations in a biological community interact and are interdependent. Key ideas include	This SOL is covered in the Life Science FOSS modules – ***Populations and Ecosystems.***
a) relationships exist between predators and prey and these relationships are modeled in food webs;	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* – Investigation 2, Parts 1-3, pp. 184-226 **ATE** *Mono Lake – Mono Lake Food Web*, Investigation 3, Part 2 pp. //////// **ATE** *Mono Lake – Ecoscenario Food Webs*, Investigation 3, Part 3, pp. 272-281 **ATE** *Population Size – Population Dynamics*, Investigation 7, Part 3, pp. 529-544 **CT** *Life in a Community*, pp. 13-15 (eBook) [Inv. 2.1] **CT** *Mono Lake throughout the Year*, pp. 97-99 (eBook) [Inv. 7.3] **CT** *Food Web*, Online Activity, fossweb.com [Inv. 3.3] **CT** *Mono Lake Date*, Online Resource, fossweb.com [Inv. 7.3]
b) the availability and use of resources may lead to competition and cooperation;	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Milkweed Bugs – Observing Milkweed Bug Habitats*, Investigation 1, Part 3, pp. 148-159 **ATE** *Population Size* – Investigation 7, Parts 1-3, pp. **ATE** *Human Impact* – Investigation 8, Parts 1-3, pp. **CT** *Milkweed Bugs*, (eBook) pp. 7-12, [Inv. 1.3] **CT** *Limiting Factors*, pp. 87-96 (eBook) [Inv. 7.2]

	CT *Biodiversity*, pp. 100-107 (eBook) [Inv. 8.1] **CT** *Invasive Species*, pp. 108-117 (eBook), [Inv. 8.2] **CT** *Hawaii: Strangers in Paradise*, Online Video, fossweb.com [Inv. 8.2]
c) symbiotic relationships support the survival of different species; and	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Investigation. 2, Part 3, pp. 4-5 **ATE** *Mono Lake – Mono Lake Food Web*, Investigation 3, Part 2, pp. 259-271 **ATE** *Mono Lake – Mono Lake Food Web*, Investigation 3, Part 3, pp. 272-281, **ATE** *Minihabitats – Introducing Life*, Investigation 4, Part 2, pp. 310-323 **ATE** *Minihabitats – Observing Minihabitats*, Investigation 4, Part 3, pp. 324-334 **CT** *Food Web*, Online Activity, fossweb.com [Inv 3.3]. **CT** *Minihabitat Organisms*, Online Resource, fossweb.com [Inv. 4.2]
d) the niche of each organism supports survival.	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Milkweed Bugs* – Investigation 1, Parts 1-2, pp. 116-147 **ATE** *Milkweed Bugs – Observing Milkweed Bug Habitats*, Investigation 1, Part 3, pp. 148-159 **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Investigatin. 2, Part 3, pp. 4-5 **ATE** *Mono Lake – Mono Lake Food Web*, Investigation 3, Part 3, pp. 272-281, **CT** *Observations and Inferences*, pp. 3-6 (eBook) [Inv. 1.2] **CT** *Milkweed Bugs*, pp. 7-12 (eBook) [Inv. 1.3] **CT** *Hawaii: Strangers in Paradise*, Online Video, fossweb.com [Inv. 8.2] **CT** *Invasive Species*, pp. 108-117 (eBook) [Inv. 8.2]

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2018 Life Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
LS.7 The student will investigate and understand that adaptations support an organism's survival in an ecosystem. Key ideas include	This SOL is covered in the Life Science FOSS modules –***Diversity of Life*** and ***Populations and Ecosystems.***
a) biotic and abiotic factors define land, marine, and freshwater ecosystems; and	**FOSS Next Generation *Diversity of Life*** **ATE** *Diversity of Life – Bioblitz,* Investigation 9, Part 1, pp 604-624 **FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* – Investigations 2, Parts 1-3, pp. 184-227 **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Inv. 2, Part 3, pp. 4-5 **ATE** *Minihabitats – The Physical Environment*, Investigation 4, Part 1, pp. 298-309 **CT** *Life in a Community*, p. 15 (eBook) [Inv. 2.1] **CT** *Defining a Biome*, pp. 31-34 (eBook) [Inv. 2.3] **CT** *An Introduction to Mono Lake*, pp. 35-40 (eBook) [Inv. 3.1] **CT** *Limiting Factors*, pp. 87-96 (eBook) [Inv. 7.2]
b) physical and behavioral characteristics enable organisms to survive within a specific ecosystem.	**FOSS Next Generation *Diversity of Life*** **ATE** *Plant Reproduction and Growth – Lima Bean Dissection*, Inv. 6, Part 1, pp. 452-461 **FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* – Investigations 2, Parts 1-3, pp. 184-227 **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Inv. 2, Part 3, pp. 4-5

	ATE *Minihabitats – The Physical Environment*, Investigation 4, Part 1, pp. 298-309 **ATE** *Ecoscenarios*, Investigation 9, Parts 1-3, pp. 618-649 **CT** *Ecoscenario Research Center*, Online Activity, fossweb.com [Inv. 9.1-2]

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2018 Life Science Standards of Learning	
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LS.8 The student will investigate and understand that ecosystems, communities, populations, and organisms are dynamic and change over time. Key ideas include	This SOL is covered in the Life Science FOSS modules –***Diversity of Life*** and ***Populations and Ecosystems.***
a) organisms respond to daily, seasonal, and long-term changes;	**FOSS Next Generation *Diversity of Life*** **ATE** *Plant Reproduction and Growth – Environmental and Genetic Factors*, Inv. 6, Part 2, pp. 462-474 **CT** *Breeding Salt-Tolerant Wheat*, pp. 58-61 (eBook) [Inv. 6.2] **FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Investigation 2, Part 3, pp. 4-5 **ATE** *Producers – Growing Producers*, Investigation 5, Part 1, pp. 354-367,
b) changes in the environment may increase or decrease population size; and	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Milkweed Bugs – Milkweed-Bug Habitat*, Investigation 1, Part 2, pp. 129-147 **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Investigation. 2, Part 3, pp. 4-5 **ATE** *Population Size* – Investigation 7, Parts 1-3, pp. 494-544 **ATE** *Ecoscenarios* – Investigation 9, Parts1-3, pp. 618-649

	CT *Milkweed Bugs, Unlimited and Milkweed Bugs, Limited,* Online Activity, fossweb.com [Inv. 7.1] **CT** *Algae and Brine Shrimp Experiments*, Online Resource, Investigation 7, Part 2 **CT** *Limiting Factors*, (eBook) pp. 87-96 Investigation 7, Part 2 **CT** *Ecoscenario Research Center/Understanding the Situation*, Online Article, fossweb.com [Inv. 9.1]
c) large-scale changes such as eutrophication, climate changes, and catastrophic disturbances affect ecosystems.	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Inv. 2, Part 3, pp. 4-5 **ATE** *Ecoscenarios – Human Involvement*, pp. 618-629, Investigation 9, Part 1 **ATE** *Ecoscenarios – Evaluating Solutions*, pp. 630-637, Investigation 9, Part 2 **ATE** *Ecoscenarios – Presentations*, pp. 638-649, Investigation 9, Part 3 **CT** *Ecoscenario Research Center/Understanding the Situation,* Online Article, fossweb.com [Inv. 9.1]

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2018 Life Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
LS.9 The student will investigate and understand that relationships exist between ecosystem dynamics and human activity. Key ideas include	This SOL is covered in the Life Science FOSS modules – ***Populations and Ecosystems.***
a) changes in habitat can disturb populations;	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Inv. 2, Part 3, pp. 4-5 **ATE** *Population Size – Limiting Factors*, Investigation 7, Part 2, pp. 509-527 **ATE** *Population Size – Population Dynamics*, Investigation 7, Part 3, pp. 529-544, **ATE** *Human Impact – Invasive Species*, Investigation 8, Part 3, pp. 583-590 **CT** *Mono Lake throughout the Year*, (eBook) pp. 97-99, [Inv. 7.3] **CT** *Mono Lake in the Spotlight*, (eBook) pp. 118-122, [Inv. 8.3] **CT** *Algae and Brine Shrimp Experiments*, Online Resource, fossweb.com [Inv. 7.2] **CT** *Mono Lake Date*, Online Resource, fossweb.com [Inv. 7.3]
b) disruptions in ecosystems can change species competition; and	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Inv. 2, Part 3, pp. 4-5 **ATE** *Human Impact – Invasive Species*, pp. 583-590, Investigation 8, Part 3 **ATE** *Human Impact – Mono Lake Revisited*, pp. 591-605, Investigation 8, Part 3 **CT** *Invasive Species*, pp. 108-117 (eBook) [Inv. 8.2] **CT** *Mono Lake in the Spotlight*, pp. 118-122 (eBook), [Investigation 8.3]

c) variations in biotic and abiotic factors can change ecosystems.	**FOSS Next Generation *Populations and Ecosystems*** **ATE** *Sorting Out Life* - AVA: *Chesapeake Bay Ecoscenario*, Inv. 2, Part 3, pp. 4-5 **ATE** *Human Impact – Invasive Species*, pp. 583-590, Investigation 8, Part 3 **ATE** *Human Impact – Mono Lake Revisited*, pp. 591-605, Investigation 8, Part 3 **CT** *Mono Lake in the Spotlight*, (eBook) pp. 118-122, Investigation 8, Part 3

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2019 Life Science Standards of Learning	
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LS.10 The student will investigate and understand that organisms reproduce and transmit genetic information to new generations. Key ideas include	This SOL is covered in the Life Science FOSS modules –***Diversity of Life*** and ***Heredity and Adaptations.***
a) DNA has a role in making proteins that determine organism traits;	**FOSS Next Generation *Diversity of Life*** **ATE** *Variation of Traits – Inheriting Traits*, Investigation 7, Part 1, pp. 518-531 **CT** *Genes and Heredity*, Online Video, fossweb.com [Inv. 7.1] **FOSS Next Generation *Heredity and Adaptations*** **ATE** *Heredity – Inheriting Traits***,** Investigation 2, Part 2, pp. 176-199 **CT** *Heredity*, Online Slideshow, fossweb.com [Inv. 2.2]
b) the role of meiosis is to transfer traits to the next generation; and	**FOSS Next Generation *Diversity of Life*** **ATE** *Plant Reproduction and Growth – Flowering Plant Production*, pp. 475-489, Inv. 6, Part 3 **CT** *The Making of a New Plant*, pp. 62-64 (eBook), [Inv. 6.3] **CT** *Nonflowering Plants*, Online Slideshow, fossweb.com [Inv. 6.3] **CT** *Seeds on the Move*, Online Slideshow, fossweb.com [Inv. 6.3]

	FOSS Next Generation *Heredity and Adaptations* **ATE** *Heredity – Inheriting Traits,* pp. 176-199, Investigation 2, Part 2 **CT** *Understanding Heredity*, pp. 22-27 (eBook) [Inv. 2.2] **CT** *A Larkey Yammer***,** Online Resource, fossweb.com [Inv. 2.2] **CT** *Heredity*, Online Slideshow, fossweb.com **[**Inv. 2.2]
c) Punnett squares are mathematical models used to predict the probability of traits in offspring.	**FOSS Next Generation *Diversity of Life*** **ATE** *Variation of Traits – Modeling Heredity*, Investigation 7, Part 2, pp. 532-551 **CT** *Mendel and Punnett Squares*, pp. 73-80 (eBook) [Inv. 7.2] **CT** *Genes and Heredity*, Online Video, fossweb.com [Inv. 7.2] **FOSS Next Generation *Heredity and Adaptations*** **ATE** *Heredity – Lines of Decent*, Investigation 2, Part 1, pp. 154-175 **ATE** *Heredity – Punnett Squares*, Investigation 2, Part 4, pp. 209-230 **CT** *Mendel and Punnett Squares*, pp. 28-35 (eBook) [Inv. 2.4] **CT** *A Model for Predicting Genetic Variation/Larkey Punnett Squares*, Online Activity, fossweb.com [Inv. 2.4]

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2018 Life Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
LS.11 The student will investigate and understand that populations of organisms can change over time. Key ideas include	This SOL is covered in the Life Science FOSS module – ***Heredity and Adaptations.***
a) mutation, adaptation, natural selection, and extinction change populations;	**FOSS Next Generation *Heredity and Adaptations*** **ATE** *Evolution* – Investigation 3, Parts 1-3, pp. 248-307 **CT** *Adaptation*, (eBook) pp. 41-52, [Inv. 3.1] **CT** *Natural Selection*, pp. 53-59 (eBook) [Inv. 3.2] **CT** *Influencing Evolution*, pp. 84-88 (eBook) [Inv. 3.3] **CT** *Making of the Fittest: Natural Selection and Adaptation*, Online Video, fossweb.com Inv. 3.2] **CT** *Larkey Natural Selection*, Online Activity, fossweb.com [Inv. 3.2] **CT** *The Origin of the Species*, Online Video, fossweb.com [Inv. 3.2] **CT** *Genetic Technology Resources*, Online Resources, fossweb.com [Inv. 3.3]
b) the fossil record, genetic information, and anatomical comparisons provide evidence for evolution; and	**FOSS Next Generation *Heredity and Adaptations*** **ATE** *The History of Life* – Investigation 1, Parts 1-2, pp. 88-134 **ATE** *Heredity* – Investigation 2, Parts 1-4 pp. 154-230 **ATE** *Evolution* – Investigation 3, Parts 1-3, pp. 248-307 **CT** *Fossil Dating*, pp.3-10 (eBook) [Inv. 1.1] **CT** *Mass Extinctions***, pp. 73-77** (eBook) [Inv. 1.1] **CT** *Natural Selection*, pp. 53-59 (eBook) [Inv. 3.2]

	CT *Biodiversity and Fossils*, Online Slideshow, fossweb.com [Inv. 1.1] **CT** *Larkey Natural Selection*, Online Activity, fossweb.com **[**Inv.3.2]
c) environmental factors and genetic variation, influence survivability and diversity of organisms.	**FOSS Next Generation *Heredity and Adaptations*** **ATE** *History of Life – Transitions,* Investigation 1 Part 2, pp. 109-134 **ATE** *History of Life – Lines of Decent*, Investigation 2, Part 1, pp. 154-175 **ATE** *Heredity – Modeling Heredity*, Investigation 2, Part 3, pp. 200-208 **CT** *An Interview with Jennifer Clack*, pp. 11-16 (eBook) [Inv. 1.2] **CT** *Transitions*, Online Resources, fossweb.com **[**Inv. 1.2] **CT** *Fish with Fingers*, Online Video, fossweb.com **[**Inv. 1.2] **CT** *The Origin of Tetrapods*, Online Video, fossweb.com **[**Inv. 1.2] **CT** *A Model for Predicting Genetic Variation*, Online Activity, fossweb.com **[**Inv. 2.3]

Science Textbook Correlation to the
2018 Physical Science Standards of Learning Curriculum Framework

Publisher	**Text Grade 8 VA FOSS Comprehensive**	
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	Phone#	**E-mail**
Contact Mary Farrell	**603-579-3562**	**mary.farrell@schoolspecialty.com**

2018 Physical Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
PS.2 The student will investigate and understand that matter is composed of atoms. Key ideas include	This SOL is covered in Physical Science in FOSS module – ***Chemical Interactions*.**
a) our understanding of atoms has developed over time;	**FOSS Next Generation *Chemical Interactions*** **ATE** *Particles – Air is Matter*, Investigation 3, Part 2, pp. 224-242 **CT** *Particles*, pp. 24-27(eBook*)* [Inv. 3.2]
b) the periodic table can be used to predict the chemical and physical properties of matter; and	**FOSS Next Generation *Chemical Interactions*** **ATE** *Air Elements – Periodic Table*, Investigation 2, Part 1, pp. 166-184 **ATE** *Elements – Elements in the World*, Investigation 2, Part 2, pp. 185-199 **CT** *Substances on Earth and Elements in the Universe*, pp. 13-23 (eBook) [Inv. 2.2] **CT** *The Periodic Table of the Elements*, Resources, fossweb.com [Inv. 2.1] **CT** *Periodic Table of Elements*, Activity, fossweb.com, [Inv. 2.1] **CT** *Element ID Game*, Activity, fossweb.com, [Inv. 2.2]

c) the kinetic molecular theory is used to predict and explain matter interactions.	**FOSS Next Generation *Chemical Interactions*** **ATE** *Particles – Air as Particles*, Investigation 3, Part 3, pp. 243-256 **ATE** *Phase Change – Melting Temperature*, Investigation 8, Parts 1-4, pp. 482-538 **CT** *Three Phases of Matter*, pp. 28-32 (eBook*)* [Inv. 3.3] **CT** *Heat of Fusion*, pp.101-109 (eBook) [Inv. 8.3] **CT** *Particles in Gases*, Online Slideshow, fossweb.com, [Inv. 3.3] **CT** *Gas in a Syringe*, Online Resource, fossweb.com, [Inv. 3.3] **CT** *Particles in Solids, Liquids, and Gases*, Activity, fossweb.com, [Inv. 8.2] **CT** *Hoar Frost*, Video, fossweb.com, Inv. 8.4]

Science Textbook Correlation to the
2018 Physical Science Standards of Learning and Curriculum Framework

Publisher **Delta Education, LLC./School Specialty, Inc.** **Text** **Grade 8 VA FOSS Comprehensive Classroom Package**

2018 Physical Science Standards of Learning	
STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
PS.3 The student will investigate and understand that matter has properties and is conserved in chemical and physical processes. Key ideas include	This SOL is covered in Physical Science in FOSS module – ***Chemical Interactions*.**
a) pure substances can be identified based on their chemical and physical properties;	**FOSS Next Generation *Chemical Interactions*** **ATE** *Substances - Mystery Mixture,* Investigation 1, Part 1 - 2, pp. 118-148 **ATE** *Particles – Capture the Gas,* Investigation 3, Part 1, pp. 214-223 **ATE** *Phase Change – Melting Temperature,* Investigation 8, Part 1-2, pp. 482-512 **ATE** *Phase Change – Freezing Water,* Investigation 8, Part 3-4, pp. 513-538 **CT** *Heat of Fusion,* pp.101-109 (eBook), [Inv. 8.3] **CT** *Two-Substance Reactions,* Activity, fossweb.com [Inv. 12] **CT** *Particles in Solids, Liquids, and Gases,* Activity, fossweb.com [Inv. 8.2] **CT** Hoar Frost, Video, fossweb.com, [Inv. 8.3]
b) pure substances can undergo physical and chemical changes that may result in a change of properties;	**FOSS Next Generation *Chemical Interactions*** **ATE** *Substances - Mystery Mixture,* Investigation 1, Parts 1-2, pp. 118-148 **ATE** *Solutions – Solubility,* Investigation 7, Part 2, pp. 442-465 **ATE** *Reaction – Substance Models,* Investigation 9, Part 1, pp. 554-575 **CT** *How things Dissolve and Concentration,* pp. 64-88, (eBook) [Inv.7.2] **CT** *Better Living through Chemistry,* pp. 110-117, (eBook) [Inv. 9.1] **CT** *Two-Substance Reactions,* Activity, fossweb.com [Inv. 1.2]

	CT *Exploring Dissolving*, Activity, fossweb.com [Inv. 7.2] **CT** *Compound Structures*, Resource, fossweb.com [Inv. 9.1]
c) compounds form through ionic and covalent bonding; and	**FOSS Next Generation *Chemical Interactions*** **ATE** *Reaction – Substance Models*, Investigation 9, Part 1, pp. 554-575 **CT** *Better Living through Chemistry*, pp. 110-117, (eBook) [Inv. 9.1] **CT** *Compound Structures*, Resource, fossweb.com [Inv. 9.1]
d) balanced chemical equations model the conservation of matter.	**FOSS Next Generation *Chemical Interactions*** **ATE** *Particles – Capture the Gas*, Investigation 3, Part 1, pp. 214-223 **ATE** *Reaction – Limewater Reaction*, Investigation 9, Part 2, pp. 576-605 **ATE** *Reaction – Baking Soda and Acid*, Investigation 9, Part 3, pp. 606-622 **CT** *Antoine-Laurent Lavoisier and Organic Compounds*, pp. 134-147, (eBook) [Inv. 9.3]

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STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
PS.4 The student will investigate and understand that the periodic table is a model used to organize elements based on their atomic structure. Key uses include	This SOL is covered in Physical Science in FOSS module – ***Chemical Interactions*.**
a) symbols, atomic numbers, atomic mass, chemical groups (families), and periods are identified on the periodic table; and	**FOSS Next Generation *Chemical Interactions*** **ATE** *Air Elements – Periodic Table*, Investigation 2, Part 1, pp. 166-184 **ATE** *Elements – Elements in the World*, Investigation 2, Part 2, pp. 185-199 **CT** *Substances on Earth and Elements in the Universe*, pp. 13-23 (eBook) [Inv. 2.1] **CT** *The Periodic Table of the Elements*, Resources, fossweb.com [Inv. 2.1] **CT** *Periodic Table of Elements*, Activity, fossweb.com, [Inv. 2.1] **CT** *Element ID Game*, Activity, fossweb.com, [Inv. 2.2]
b) elements are classified as metals, metalloids, and nonmetals.	**FOSS Next Generation *Chemical Interactions*** **ATE** *Air Elements – Periodic Table*, Investigation 2, Part 1, pp. 166-184 **ATE** *Elements – Elements in the World*, Investigation 2, Part 2, pp. 185-199 **CT** *Substances on Earth and Elements in the Universe*, pp. 13-23 (eBook) [Inv. 2.1] **CT** *The Periodic Table of the Elements*, Resources, fossweb.com [Inv. 2.1] **CT** *Periodic Table of Elements*, Activity, fossweb.com, [Inv. 2.1] **CT** *Element ID Game*, Activity, fossweb.com, [Inv. 2.2]

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STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
PS.5 The student will investigate and understand that energy is conserved. Key ideas include	This SOL is covered in the Physical Science in FOSS modules – ***Electromagnetic Force, Waves, Gravity and Kinetic Energy*** and ***Chemical Interactions.***
a) energy can be stored in different ways;	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Energy and Collisions – Potential and Kinetic Energy,* Investigation 3, Part 1-2, pp. 210-239 **ATE** *Kinetic Energy – Gas Expansion/Contraction,* Investigation 4, Parts 1-3, pp. 270-313 **CT** *Potential and Kinetic Energy*, pp. 37-40 (eBook) [Inv. 3.1] **CT** *Where We Get Energy*, pp. 56-62 (eBook) [Inv. 4.2] **CT** *Particles in Solids, Liquids, and Gases*, Activity, fossweb.com [Inv. 4.3] **FOSS Next Generation Waves** **ATE** *Wave Energy – Energy in Waves*, Investigation 2, Part 1, pp. 126-141 **CT** *Ocean Waves*, pp. 3-6, (eBook) [Inv. 2.1] **CT** *Tsunamis!*, pp. 7-11, (eBook) [Inv. 2.1]

b) energy is transferred and transformed; and	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Energy Transfer – Electric Motors*, Investigation 4, Parts 1-3, *pp. 270-313* **FOSS Next Generation *Waves*** **ATE** *Waves Energy,* Investigation 2, Parts 1-3, pp. **FOSS Next Generation *Gravity and Kinetic Energy*** **ATE** *Energy and Collisions,* Investigation 3, Parts 1-3, pp. **ATE** *Collision Energy*, Investigation 4, Parts 1-2, pp. **FOSS Next Generation *Chemical Interactions*** **ATE** *Energy Transfer – Mixing Hot and Cold*, Investigation 5, Parts 1-3, pp. 330-371 **ATE** *Thermos Engineering – Insulation*, Investigation 6, Parts 1-2, pp.384-414 **ATE** *Solutions – Dissolve and Melt, Investigation* 7, Part 1, pp. 430-440 **ATE** *Phase Change – Melting Temperature*, Investigation 8, Parts 1-4, pp. 482-489
c) energy can be transformed to meet societal needs.	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Energy Transfer – Electric Motors*, Investigation 4, Part 1, pp. 270-280 **ATE** *Energy Transfer – Force and Energy*, Investigation 4, Part 3, pp. 302-307 **CT** *The Rebirth of Electric Cars*, pp. 47-55 (eBook) [Inv.4.2] **CT** *Where We Get Energy*, pp. 56-62 (eBook) [Inv. 4.2] **CT** *Kitchen Magnets*, Activity, fossweb.com [Inv. 4.1] **CT** *Generator Dissection*, Video, fossweb.com [Inv. 4.2]

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2018 Physical Science Standards of Learning	
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PS.6 The student will investigate and understand that waves are important in the movement of energy. Key ideas include	This SOL is covered in the Physical Science in FOSS modules – ***Waves*** and ***Electromagnetic Force.***
a) energy may be transferred in the form of longitudinal and transverse waves;	**FOSS Next Generation *Waves*** **ATE** Make Waves – Pulse Rate**,** Investigation 1, Part 1, pp. 90-98 **ATE** *Make Waves – Spring Waves*, Investigation 1, Part 2, pp. 99-111 **CT** *Telecommunication: From Telegraph to Smartphone*, pp. 69-78 (eBook) [Inv. 4.3] **CT** *Transverse and Compression Waves*, Resource, fossweb.com, [Inv. 1.2]
b) mechanical waves need a medium to transfer energy;	**FOSS Next Generation *Waves*** **ATE** *Make Waves – Spring Waves*, Investigation 1, Part 2, pp. 99-111 **ATE** *Wave Energy – Energy in Sound Waves*, Investigation 2, Part 3, pp. 156-174 **CT** *Sound Waves*, pp. 17-20 (eBook) [Inv. 2.3] **CT** *Acoustic Engineering*, pp. 21-27 (eBook) [Inv. 2.3] **CT** *Telecommunication: From Telegraph to Smartphone*, pp. 69-78, (eBook) [Inv. 4.3] **CT** *Transverse and Compression Waves*, Resource, fossweb.com, [Inv. 1.2] **CT** *Soundproof Engineering*, Video, fossweb.com, [Inv. 2.3] **CT** *Oscilloscope*, Activity, fossweb.com, [Inv. 2.3]

c) waves can interact; and	**FOSS Next Generation *Waves*** **ATE** *Wave Energy – Bridge Collapse*, Investigation 2, Part 2, pp. 142-155 **CT** *Telecommunication: From Telegraph to Smartphone*, pp. 69-78, (eBook) [Inv. 4.3] **CT** *Tacoma Narrows Bridge Collapse*, Video, fossweb.com, Investigation 2, Part 2
d) energy associated with waves has many applications.	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Wave Energy – Energy in Sound Waves*, Investigation 2, Part 3, pp. 156-174 **CT** *Sound Waves*, pp. 17-20 (eBook) [Inv. 2.3] **CT** *Acoustic Engineering*, pp. 21-27 (eBook) [Inv. 2.3] **CT** *Telecommunication: From Telegraph to Smartphone*, pp. 69-78, (eBook) [Inv. 4.3] **CT** *Soundproof Engineering*, Video, fossweb.com, [Inv. 2.3] **CT** *Oscilloscope*, Activity, fossweb.com [Inv. 2.3]

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STANDARD	**Correlation: Must address both the standards and the curriculum framework. Use page number and ATE for Annotated Teacher Edition or CT for Core Technology. (Identify no more than 8 correlations.)**
PS.7 The student will investigate and understand that electromagnetic radiation has characteristics. Key ideas include	This SOL is covered in the Physical Science in FOSS module – ***Waves.***
a) electromagnetic radiation, including visible light, has wave characteristics and behavior; and	**FOSS Next Generation *Waves*** **ATE** *Light Waves – Mirrors*, Investigation 3, Parts 1-2, pp. 190-222 **ATE** *Light Waves – Color*, Investigation 3, Part 3, pp. 223-232 **ATE** *Light Waves – Refraction*, Investigation 3, Part 4, pp. 233-242 **CT** *Reflecting Light*, pp. 28-32 (eBook) [Inv. 3.1] **CT** *Electromagnetic Spectra, Electromagnetic Radiation and Human Health*, pp. 33-41 (eBook) [Inv, 3,2] **CT** *Throw a Little Light on Sight*, pp. 49-53 (eBook) [Inv. 3.3] **CT** *Telecommunication: From Telegraph to Smartphone*, pp. 69-78, (eBook) [Inv. 4.3] **CT** *Refraction* Activity, fossweb.com [Inv. 3.4]
b) regions of the electromagnetic spectrum have specific characteristics and uses.	**FOSS Next Generation *Waves*** **ATE** *Communication Waves – Optica Fibers*, Investigation 4, Part 1, pp. 260-266 **ATE** *Communication Waves – Sending Sound*, Investigation 4, Part 2, pp. 267-276 **CT** *Lasers*, pp. 58-62 (eBook) [Inv. 4.1] **CT** *Digitalized Communication*, pp. 63-68 (eBook) [Inv. 4.3]

	CT *Telecommunication: From Telegraph to Smartphone*, pp. 69-78, (eBook) [Inv. 4.3] **CT** *Fiber Optics*, Video, fossweb.com [Inv. 4.1] **CT** *Digitized Images*, Activity, fossweb.com, Inv. 4.3]

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PS.8 The student will investigate and understand that work, force, and motion are related. Key ideas include	This SOL is covered in the Physical Science in FOSS modules –***Electromagnetic Force*** and ***Gravity and Kinetic.***
a) motion can be described using position and time; and	**FOSS Next Generation *Gravity* and *Kinetic Energy*** **ATE** *Acceleration – Speed Tracks*, Investigation 1, Part 1, pp. 92-107 **ATE** *Acceleration – Acceleration Track*, Investigation 1, Part 2, pp. 108-121 **ATE** *Acceleration – Acceleration of Gravity*, Investigation 1, Part 3, pp. 122-146 **CT** *How Fast Do Things Go?*, pp. 3-19, (eBook), [Inv. 1.1] **CT** *Faster and Faster*, pp.11-17, (eBook), [Inv. 1.2] **CT** *Gravity: It's the Law*, pp. 18-25, (eBook) [Inv. 1.3] **CT** *Creation – Movie Tracker*, Video, fossweb.com [Inv. 1.3] **CT** *Falling Ball*, Video, fossweb.com, [Inv.1.3]
b) motion is described by Newton's laws.	**FOSS Next Generation *Electromagnetic Force*** **ATE** *What is a Force? – Push and Pull*, Investigation 1, Parts 1-3, pp. 94-134 **CT** *The Force is With You*, pp. 3-7 (eBook) [Inv. 1.1] **CT** *The Discovery of Friction*, pp. 8-14 (eBook) [Inv. 1.2] **FOSS Next Generation *Gravity and Kinetic Energy*** **ATE** *Force of Gravity – Mass and Weight*, Investigation 2, Parts 1-2, pp. 162-196 **ATE** *Energy and Collisions – Stop or Crash*?, Investigation 3, Parts 2-3, pp. 230-255

	CT *A Weighty Matter*, pp. 26-30 (eBook) [Inv. 2.1] **CT** *Gravity in Space*, pp. 31-36 (eBook) [Inv. 2.2] **CT** *Newton's Laws*, pp. 45-49 (eBook) [Inv. 3.3]

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PS.9 The student will investigate and understand that there are basic principles of electricity and magnetism. Key ideas include	This SOL is covered in the Physical Science in FOSS module – ***Electromagnetic Force*.**
a) an imbalance of charge generates static electricity;	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Electromagnetism – Building a Circuit,* Investigation 3, Part 1, pp. 206-225 **ATE** *Energy Transfer – Force and Energy,* Investigation 4, Part 3, pp. 302-307 **CT** *Circuitry and Lightbulbs*, pp. 25-30 (eBook) [Inv. 3.1] **CT** What is Electricity?, pp. 31-37 (eBook) [Inv. 3.1] **CT** *Lighting a Bulb*, Activity, fossweb.com [Inv. 3.1]
b) materials have different conductive properties;	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Electromagnetism – Building a Circuit,* Investigation 3, Part 1, pp. 206-225 **ATE** *Energy Transfer – Force and Energy,* Investigation 4, Part 3, pp. 302-307 **CT** *Circuitry and Lightbulbs*, pp. 25-30 (eBook) [Inv. 3.1] **CT** *Lighting a Bulb*, Activity, fossweb.com [Inv. 3.1]
c) electric circuits transfer energy;	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Electromagnetism – Building a Circuit,* Investigation 3, Part 1, pp. 206-225 **ATE** *Energy Transfer – Force and Energy,* Investigation 4, Part 3, pp. 302-307 **CT** *Circuitry and Lightbulbs*, pp. 25-30 (eBook) [Inv. 3.1] **CT** *Lighting a Bulb*, Online Activity, fossweb.com [Inv. 3.1]

d) magnetic fields cause the magnetic effects of certain materials;	**FOSS Next Generation *Electromagnetic Force*** **ATE** *The Force of Magnetism – Properties of Magnets,* Investigation 2, Parts 1-3, pp. 150-190 **ATE** *Electromagnetism – Building an Electromagnet,* Investigation 3, Parts 2-3, pp. 226-254 **CT** *Magnetic Force*, pp. 19-24 (eBook) [Inv. 2.2] **CT** *Electromagnetism*, pp. 38-41(eBook) [Inv.3.2] **CT** *Electromagnetic Engineering*, pp. 42-46 (eBook) [Inv. 3.3] **CT** *Magnetism*, Video, fossweb.com [Inv. 2.2] **CT** *Adding Magnetic Fields*, Online Activity, fossweb.com [Inv. 2.3] **CT** *Kitchen Magnets*, Activity, fossweb.com [Inv. 3.2]
e) electric current and magnetic fields are related; and	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Electromagnetism – Building an Electromagnet*, Investigation 3, Part 2, pp. 226-241 **ATE** *Electromagnetism – Improving the Design*, Investigation 3, Part 3, pp. 242-254 **ATE** *Energy Transfer – Force and Energy*, Investigation 4, Part 3, pp. 302-307 **CT** *Electromagnetism*, pp. 38-41 (eBook) [Inv.3.2] **CT** *Kitchen Magnets*, Activity, fossweb.com [Inv. 3.2]
f) many technologies use electricity and magnetism.	**FOSS Next Generation *Electromagnetic Force*** **ATE** *Energy Transfer – Electric Motors,* Investigation 4, Part 1, pp. 270-280 **ATE** *Energy Transfer – Force and Energy*, Investigation 4, Part 3, pp. 302-307 **CT** *The Rebirth of Electric Cars*, pp. 47-55 (eBook) [Inv.4.2] **CT** *Kitchen Magnets*, Activity, fossweb.com [Inv. 4.1] **CT** *Generator Dissection*, Video, fossweb.com [Inv. 4.2]