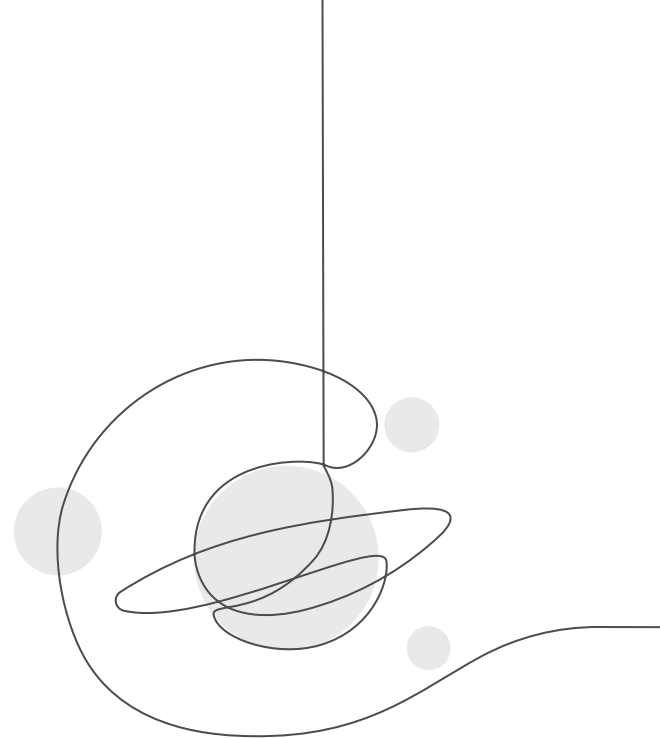


6–8 unit alignment

Next Generation Science Standards

Integrated model*



authored by



THE LAWRENCE
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* This is an example sequence. Amplify Science will work with you to design a sequence that fits your school's or district's needs.

Grade 6

Amplify Science unit name and summary	Focal NGSS performance expectation(s) addressed	Additional NGSS performance expectation(s) addressed
Microbiome As microbiological researchers, students must figure out why a fecal transplant cured a patient suffering from a deadly <i>C. difficile</i> infection. In the process they learn about cells and about interactions among organisms.	LS1-1: From Molecules to Organisms: Structures and Processes LS1-2: From Molecules to Organisms: Structures and Processes LS1-3: From Molecules to Organisms: Structures and Processes	LS2-1: Ecosystems: Interactions, Energy, and Dynamics LS2-2: Ecosystems: Interactions, Energy, and Dynamics
Metabolism Students take on the role of medical researchers and diagnose a patient whose body systems aren't working. They learn about cellular respiration and how body systems work together to get molecules to the cells.	LS1-1: From Molecules to Organisms: Structures and Processes LS1-2: From Molecules to Organisms: Structures and Processes LS1-3: From Molecules to Organisms: Structures and Processes LS1-5: From Molecules to Organisms: Structures and Processes LS1-7: From Molecules to Organisms: Structures and Processes LS1-8: From Molecules to Organisms: Structures and Processes	
Engineering Internship: Metabolism As food engineer interns, students apply their knowledge of human metabolism, as well as engineering and design concepts, to design a recipe for an energy bar that meets the needs of populations in areas devastated by natural disasters.	ETS1-1: Engineering Design ETS1-2: Engineering Design ETS1-3: Engineering Design ETS1-4: Engineering Design	LS1-7: From Molecules to Organisms: Structures and Processes
Traits and Reproduction Working as biomedical scientists, students investigate the causes of surprising variation in spider silk flexibility. Students learn why organisms — even parents, offspring, and siblings — vary in their traits.	LS1-2: From Molecules to Organisms: Structures and Processes LS1-4: From Molecules to Organisms: Structures and Processes LS1-5: From Molecules to Organisms: Structures and Processes LS3-1: Heredity: Inheritance and Variation of Traits LS3-2: Heredity: Inheritance and Variation of Traits LS4-5: Biological Evolution: Unity and Diversity	LS1-3: From Molecules to Organisms: Structures and Processes
Thermal Energy In their role as thermal scientists, students evaluate competing proposals for heating a school, applying what they learn about matter, energy, and temperature.	PS3-3: Energy PS3-4: Energy PS3-5: Energy	PS1-1: Matter and Its Interactions PS1-4: Matter and Its Interactions PS2-1: Motion and Stability: Forces and Interactions PS3-2: Energy

Amplify Science unit name and summary	Focal NGSS performance expectation(s) addressed	Additional NGSS performance expectation(s) addressed
<p>Ocean, Atmosphere, and Climate</p> <p>As climatologists, students must explain the pattern of temperature changes in El Niño years, which are impacting agriculture around the Pacific. They learn about how sunlight, ocean, and atmosphere interact to produce regional climate.</p>	ESS2-6: Earth's Systems	<p>ESS2-3: Earth's Systems</p> <p>ESS2-5: Earth's Systems</p> <p>ESS3-2: Earth and Human Activity</p> <p>PS1-4: Matter and Its Interactions</p> <p>PS3-3: Energy</p>
<p>Weather Patterns</p> <p>Students play the role of forensic meteorologists who must explain why powerful storms have increased after a man-made lake was built. They learn how air masses, water, and energy from the sun produce weather phenomena.</p>	<p>ESS2-4: Earth's Systems</p> <p>ESS2-5: Earth's Systems</p>	<p>ESS2-1: Earth's Systems</p> <p>ESS2-6: Earth's Systems</p> <p>ESS3-2: Earth and Human Activity</p> <p>PS1-4: Matter and Its Interactions</p> <p>PS3-3: Energy</p>
<p>Earth's Changing Climate</p> <p>In their role as climatologists, students must explain why Earth's ice is melting. They learn about how changes in the atmosphere are affecting the energy balance in the Earth's system, and about humans' role in these changes.</p>	<p>ESS3-4: Earth and Human Activity</p> <p>ESS3-5: Earth and Human Activity</p>	<p>ESS3-2: Earth and Human Activity</p> <p>ESS3-3: Earth and Human Activity</p> <p>LS2-1: Ecosystems: Interactions, Energy, and Dynamics</p> <p>LS2-4: Ecosystems: Interactions, Energy, and Dynamics</p>
<p>Engineering Internship: Earth's Changing Climate</p> <p>As civil engineering interns, students apply design and engineering concepts as they create a plan for making changes to building rooftops. Their goal is to make a city more energy efficient, and thus reduce the carbon dioxide produced from combustion.</p>	<p>ETS1-1: Engineering Design</p> <p>ETS1-2: Engineering Design</p> <p>ETS1-3: Engineering Design</p> <p>ETS1-4: Engineering Design</p> <p>ESS3-3: Earth and Human Activity</p>	<p>ESS3-5: Earth and Human Activity</p> <p>PS4-2: Waves and their Applications in Technologies for Information Transfer</p>

Grade 7

Amplify Science unit name and summary	Focal NGSS performance expectation(s) addressed	Additional NGSS performance expectation(s) addressed
Geology on Mars As planetary geologists, students analyze data about geoscience processes on the surface of Mars in order to decide whether Mars could have been habitable.	ESS1-3: Earth's Place in the Universe ESS2-2: Earth's Systems	
Plate Motion Students play the role of geologists trying to explain the concentration of gold in certain parts of the seafloor. They use fossil evidence to support an explanation involving plate motion.	ESS1-4: Earth's Place in the Universe ESS2-2: Earth's Systems ESS2-3: Earth's Systems	
Engineering Internship: Plate Motion In their role as geohazards engineering interns, students design a tsunami warning system. They apply ideas about plate motion and natural hazards as well as engineering and design concepts.	ETS1-1: Engineering Design ETS1-2: Engineering Design ETS1-3: Engineering Design ETS1-4: Engineering Design ESS3-2: Earth and Human Activity	ESS2-2: Earth's Systems ESS2-3: Earth's Systems
Rock Transformations As geologists, students investigate the mystery of how two-billion-year-old sand grains could be found on an island that formed only nine million years ago. They apply ideas about cycling of Earth materials.	ESS2-1: Earth's Systems ESS2-2: Earth's Systems ESS3-1: Earth and Human Activity	ESS1-3: Earth's Place in the Universe
Phase Change Students, in their roles as student chemists, investigate the mystery of disappearing methane lakes on Saturn's moon, Titan. They must apply what they learn about phase change, matter and energy.	PS1-4: Matter and Its Interactions PS1-1: Matter and Its Interactions	PS2-4: Motion and Stability: Forces and Interactions PS3-4: Energy PS3-5: Energy ESS1-3: Earth's Place in the Universe

Amplify Science unit name and summary	Focal NGSS performance expectation(s) addressed	Additional NGSS performance expectation(s) addressed
<p>Engineering Internship: Phase Change</p> <p>As chemical engineering interns, students design and test plans for an incubator for premature and low birth weight babies, applying ideas about phase change and the engineering and design process.</p>	<p>ETS1-1: Engineering Design ETS1-2: Engineering Design ETS1-3: Engineering Design ETS1-4: Engineering Design</p>	<p>PS1-4: Matter and Its Interactions PS3-3: Energy PS3-4: Energy</p>
<p>Chemical Reactions</p> <p>Students play the role of forensic chemists, applying what they learn about matter and chemical reactions to solve the mystery of mysterious substances appearing in a county's water supply.</p>	<p>PS1-1: Matter and Its Interactions PS1-2: Matter and Its Interactions PS1-3: Matter and Its Interactions PS1-5: Matter and Its Interactions PS1-6: Matter and Its Interactions</p>	<p>LS1-6: From Molecules to Organisms: Structures and Processes LS1-7: From Molecules to Organisms: Structures and Processes ESS3-1: Earth and Human Activity ESS3-3: Earth and Human Activity ESS3-5: Earth and Human Activity</p>
<p>Populations and Resources</p> <p>In their role as biologists, students work to uncover the cause of the moon jelly population explosion in Glacier Sea. They learn about how organisms interact in an ecosystem to get the resources they need.</p>	<p>LS2-1: Ecosystems: Interactions, Energy, and Dynamics LS2-2: Ecosystems: Interactions, Energy, and Dynamics LS2-3: Ecosystems: Interactions, Energy, and Dynamics LS2-4: Ecosystems: Interactions, Energy, and Dynamics LS2-5: Ecosystems: Interactions, Energy, and Dynamics</p>	<p>LS1-7: From Molecules to Organisms: Structures and Processes ESS3-3: Earth and Human Activity</p>
<p>Matter and Energy in Ecosystems</p> <p>Students act as ecologists to investigate a failed biodome. In the process they learn about how matter, carbon in particular, flows through biotic and abiotic components of an ecosystem.</p>	<p>LS1-6: From Molecules to Organisms: Structures and Processes LS1-7: From Molecules to Organisms: Structures and Processes LS2-2: Ecosystems: Interactions, Energy, and Dynamics LS2-3: Ecosystems: Interactions, Energy, and Dynamics LS2-4: Ecosystems: Interactions, Energy, and Dynamics</p>	<p>LS1-2: From Molecules to Organisms: Structures and Processes PS1-1: Matter and Its Interactions PS1-6: Matter and Its Interactions ESS2-1: Earth's Systems ESS3-5: Earth and Human Activity</p>

Grade 8

Amplify Science unit name and summary	Focal NGSS performance expectation(s) addressed	Additional NGSS performance expectation(s) addressed
Harnessing Human Energy In their role as energy scientists, students learn about energy transfer and conversion as they design a system to power the electronic devices of rescue workers.	PS3-1: Energy PS3-2: Energy	PS3-5: Energy ESS3-1: Earth and Human Activity ETS1-1: Engineering Design
Force and Motion As student physicists at the fictional Universal Space Agency, students must analyze what went wrong in a space station docking failure. To do so, they need to apply what they learn about forces, changes in motion, and collisions.	PS2-1: Motion and Stability: Forces and Interactions PS2-2: Motion and Stability: Forces and Interactions	PS3-1: Energy
Force and Motion: Engineering Internship As mechanical engineering interns, students apply ideas about force and motion, as well as engineering and design concepts, to design supply pods to be dropped in disaster areas.	ETS1-1: Engineering Design ETS1-2: Engineering Design ETS1-3: Engineering Design ETS1-4: Engineering Design	PS2-1: Motion and Stability: Forces and Interactions PS2-2: Motion and Stability: Forces and Interactions PS2-4: Motion and Stability: Forces and Interactions
Magnetic Fields In their roles as student physicists, students must analyze why the new magnet-driven space jet launcher is not working as expected. They apply ideas about non-touching forces and potential energy.	PS2-3: Motion and Stability: Forces and Interactions PS2-4: Motion and Stability: Forces and Interactions PS2-5: Motion and Stability: Forces and Interactions PS3-2: Energy	PS3-1: Energy PS3-5: Energy
Light Waves In their role as spectroscopists, students learn about light waves and how they interact with matter, and apply this knowledge to investigate Australia's elevated skin cancer rate.	PS4-1: Waves and their Applications in Technologies for Information Transfer PS4-2: Waves and their Applications in Technologies for Information Transfer PS4-3: Waves and their Applications in Technologies for Information Transfer	LS1-1: From Molecules to Organisms: Structures and Processes LS1-2: From Molecules to Organisms: Structures and Processes LS1-6: From Molecules to Organisms: Structures and Processes LS1-8: From Molecules to Organisms: Structures and Processes

Amplify Science unit name and summary	Focal NGSS performance expectation(s) addressed	Additional NGSS performance expectation(s) addressed
Earth, Moon, and Sun Students play the role of student astronomers who must learn about the Earth/moon/sun system, including phases and eclipses, in order to advise an astrophotographer who is photographing moon features.	ESS1-1: Earth's Place in the Universe ESS1-2: Earth's Place in the Universe ESS1-3: Earth's Place in the Universe	PS2-4: Motion and Stability: Forces and Interactions
Natural Selection In the role of biologists, students investigate how a population of rough-skinned newts in Oregon State Park become incredibly poisonous. They learn about variation, adaptation, and the mechanism of natural selection.	LS3-1: Heredity: Inheritance and Variation of Traits LS4-4: Biological Evolution: Unity and Diversity LS4-6: Biological Evolution: Unity and Diversity	LS4-5: Biological Evolution: Unity and Diversity LS2-4: Ecosystems: Interactions, Energy, and Dynamics
Engineering Internship: Natural Selection As clinical engineers, students apply what they have learned about natural selection as well as engineering and design concepts to develop, test, and refine treatments for drug-resistant malaria.	ETS1-1: Engineering Design ETS1-2: Engineering Design ETS1-3: Engineering Design ETS1-4: Engineering Design	LS3-1: Heredity: Inheritance and Variation of Traits LS4-4: Biological Evolution: Unity and Diversity LS4-6: Biological Evolution: Unity and Diversity
Evolutionary History In the role of paleontologists, students investigate a fossil recently excavated in Egypt that could be closely related to whales or to wolves. They learn how the fossil record helps provide evidence for evolutionary relationships.	LS4-1: Biological Evolution: Unity and Diversity LS4-2: Biological Evolution: Unity and Diversity LS4-3: Biological Evolution: Unity and Diversity	LS4-6: Biological Evolution: Unity and Diversity

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