A Correlation of

Savvas
iLit California

To

California's Proposed Next Generation Science Standards (NGSS)

Grades 4-8

SAVVAS

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Introduction

This document demonstrates how ***Savvas iLit California ©2016*** meets the **California's Proposed Next Generation Science Standards (NGSS).** Correlation alignments are to the following student facing materials: Library, Interactive Reading, Read Aloud Think Aloud and Word Study Readers and are cited by title and author.

Savvas iLit California is a comprehensive digital interactive intensive intervention solution targeted toward students in grades four through eight with a proficiency level in reading and writing two or more grades below level and designed to accelerate reading and writing growth and enable students to achieve more than two years of growth within a single school year.

Savvas iLit California ELL is a comprehensive digital interactive intensive intervention solution that provides an intensive, accelerated pathway toward on-grade level language proficiency for English learners, including those at risk of becoming or who are long-term English Learners, whose performance is below grade level, are making minimal progress toward English proficiency, and whose lack of language proficiency precludes them from performing at grade level.

Table of Contents

California's Proposed Next Generation Science Standards	Savvas iLit California, ©2016 Grades 4-8
Grade Four	
4-LS1 From Molecules to Organisms: Structures and Processes Students who demonstrate understanding can: **4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction** **4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.**	**Library:** *At the Root of It,* Robert Newell *Plants Grow?* (Dorling Kindersley), Lynn Bryan *Trees and Leaves* (Dorling Kindersley), Jane Manners *Where Do Plants Grow?* (Dorling Kindersley), Lynn Bryan *Coral Reefs* (Dorling Kindersley) Sydnie Meltzer *Fins, Wings, and Legs,* Rachel Griffiths and Margaret Clyne *Survival: Animal Adaptations* (Dorling Kindersley) Alice Cary *The Buzz About Honeybees,* Emily Costello *The Wonder of Whales,* Thea Feldman *We Need Insects,* Anna Prokos **IR:** U1W2 *Awesome Ants!* (Level 1); *How Did the Animals Know?* (Level 3) U1W3 *Flight for Survival* (Level 3) U1W4 *Dogs to the Rescue!* (Level 1); *Rescuing Whales* (Level 2) U1W5 *The Mysterious Amazon River Dolphin* (Level 2); *Camouflage in the Wild* (Level 3) U4W1 *Warning: Bugs at Work!* (Level 3) **WSR:** *How Animals Communicate*
4-ESS1 Earth's Place in the Universe Students who demonstrate understanding can: **4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.**	**Library:** *Fossil Find,* Rose Howell *Fossil Seekers* (Dorling Kindersley) Laura Buller *A Guide to Rocks and Minerals* (Dorling Kindersley) , Jeffrey B. Fuerst *It's All in the Soil* (Dorling Kindersley), Barbara Gannett *Rock Records* (Dorling Kindersley), Jan M. Mike *Sand* (Dorling Kindersley) Margaret Clyne; Rachel Griffiths

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4-ESS2 Earth's Systems Students who demonstrate understanding can: **4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation** **4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.**	**Library:** *A Guide to Rocks and Minerals* (Dorling Kindersley) , Jeffrey B. Fuerst *Rock Records* (Dorling Kindersley), Jan M. Mike *Sand* (Dorling Kindersley) Margaret Clyne; Rachel Griffiths **IR:** U4W5 *In the Wake of an Earthquake* (Level 3) **WSR:** *Water in Your Life*
4-ESS3 Earth and Human Activity Students who demonstrate understanding can: **4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.** **4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.***	**Library:** *Changing Shores,* Pamela Jennett *Ecological Disasters,* Ann Weil *Global Warming Differentiated Text,* Saddleback Educational Publishing *Heroes of the Environment,* Harriet Rohmer Interface: Ban the Bottle! Sabrina Scott Interface: Human Impact! Interface: Jane of the Jungle, Kate Wong Interface: On Global Warming Interface: Why I Lived With My Garbage For a Year, Brennan Blazer *Recycling,* Saddleback Educational Publishing *Save Our Earth* (Dorling Kindersley) Sharon Stewart *Water Conservation,* Saddleback Educational Publishing *Water Wise* (Dorling Kindersley), Myka Lynne Sokoloff **IR:** U2W4 *Safer Energy* (Level 1)

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4-PS3 Energy Students who demonstrate understanding can: **4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.** **4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents** **4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.** **4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another**	**Library:** *Dictionary of Forces, Matter, & Energy* (Dorling), Leslie Garrett *Albert Einstein,* Anne Schraff *Madam Curie,* Saddleback Educational Publishing *Inventing the Telephone* (Dorling Kindersley), Sue Graves *Thomas Edison,* Saddleback Educational Publishing **IR:** U2W4 *Safer Energy* (Level 1)
4-PS4 Waves and their Applications in Technologies for Information Transfer Students who demonstrate understanding can: **4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.** **4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.** **4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information**	**Library:** *Light and Shade* (Dorling Kindersley), Susanna Daniel

California's Proposed Next Generation Science Standards	Savvas iLit California, ©2016 Grades 4-8
3-5-ETS1 Engineering Design Students who demonstrate understanding can: **3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.** **3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.** **3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.**	**Library:** For related material see: *Great Math Ideas,* Catherine Ripley *Playground Science* (Dorling Kindersley), Elizabeth Paren *Albert Einstein,* Anne Schraff *Madam Curie,* Saddleback Educational Publishing *Inventing the Telephone* (Dorling Kindersley), Sue Graves *Thomas Edison,* Saddleback Educational Publishing **IR:** U2W1 *A Life in Science: Mae Jemison* (Level 1) **WSR:** Forces Around Us
Grade Five	
5-LS1 From Molecules to Organisms: Structures and Processes Students who demonstrate understanding can: **5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.**	**Library:** *At the Root of It,* Robert Newell *Coconut: Seed or Fruit?* Rosie McCormick *Plants Grow?* (Dorling Kindersley), Lynn Bryan *Trees and Leaves* (Dorling Kindersley), Jane Manners *Where Do Plants Grow?* (Dorling Kindersley), Lynn Bryan
5-LS2 Ecosystems: Interactions, Energy, and Dynamics Students who demonstrate understanding can: **5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.**	**Library:** *At the Root of It,* Robert Newell *Plants Grow?* (Dorling Kindersley), Lynn Bryan *Trees and Leaves* (Dorling Kindersley), Jane Manners *Where Do Plants Grow?* (Dorling Kindersley), Lynn Bryan

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5-ESS1 Earth's Place in the Universe Students who demonstrate understanding can: **5-ESS1-1. Support an argument that the apparent brightness of the sun and stars is due to their relative distances from Earth.** **5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.**	**Library:** *A Guide to Constellations* (Dorling Kindersley) Gib Goodfellow and Liz Stenson *Astronauts Take Flight* (Dorling Kindersley), Robert Gott *Book of Space: Questions and Answers* (Dorling) Rosie McCormick *Could We Live on the Moon?* (Dorling Kindersley) Frieda Wishinsky Interface: We Choose to Go to the Moon, John F. Kennedy *Our Mysterious Universe* (Dorling Kindersley), Laura Langston *Star Pictures* (Dorling Kindersley), Leslie Kimmelman
5-ESS2 Earth's Systems Students who demonstrate understanding can: **5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.** **5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth**	**Library:** *Clouds* (Dorling Kindersley) Jane Manners *Ellen Ochoa,* Vivian M. Cuesta *Deadly Storms,* Ann Weil *Hurricanes* (Dorling Kindersley) Maureen Haselhurst *Wacky Weather,* Margery Niblock *Water Conservation,* Saddleback Educational Publishing *Water Wise* (Dorling Kindersley), Myka Lynne Sokoloff **WSR:** Earthquakes; Oceans

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5-ESS3 Earth and Human Activity Students who demonstrate understanding can: **5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.**	**Library:** Alternative Fuels Differentiated Text, Saddleback Educational Publishing *Changing Shores,* Pamela Jennett *Ecological Disasters,* Ann Weil *Global Warming Differentiated Text,* Saddleback Educational Publishing *Heroes of the Environment,* Harriet Rohmer Interface: Ban the Bottle! Sabrina Scott Interface: Human Impact! Interface: Jane of the Jungle, Kate Wong Interface: On Global Warming Interface: Why I Lived With My Garbage For a Year, Brennan Blazer *Recycling,* Saddleback Educational Publishing *Save Our Earth* (Dorling Kindersley) Sharon Stewart *Water Conservation,* Saddleback Educational Publishing *Water Wise* (Dorling Kindersley), Myka-Lynne Sokoloff *Wetlands,* Anastasia Suen **WSR:** Oceans
5-PS1 Matter and Its Interactions Students who demonstrate understanding can: **5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.** **5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.** **5-PS1-3. Make observations and measurements to identify materials based on their properties** **5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.**	**Library:** For related material see: *Albert Einstein,* Anne Schraff *Madam Curie,* Saddleback Educational Publishing

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5-PS2 Motion and Stability: Forces and Interactions Students who demonstrate understanding can: **5-PS2-1 Support an argument that the gravitational force exerted by Earth on objects is directed down.**	**Library:** *Dictionary of Forces, Matter, & Energy* (Dorling), Leslie Garrett
5-PS3 Energy Students who demonstrate understanding can: **5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.**	**Library:** *Dictionary of Forces, Matter, & Energy* (Dorling), Leslie Garrett *It's a Mammal!* Sharon Stewart *Survival: Animal Adaptations* (Dorling Kindersley) Alice Cary
3-5-ETS1 Engineering Design Students who demonstrate understanding can: **3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.** **3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.** **3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.**	**Library:** For related material see: *Great Math Ideas,* Catherine Ripley *Playground Science* (Dorling Kindersley), Elizabeth Paren *Albert Einstein,* Anne Schraff *Madam Curie,* Saddleback Educational Publishing *Inventing the Telephone* (Dorling Kindersley), Sue Graves *Thomas Edison,* Saddleback Educational Publishing **IR:** U5W5 *Making the World a Better Place: The Google Science Fair* (Level 1)

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Grade Six	
MS-LS1 From Molecules to Organisms: Structures and Processes Students who demonstrate understanding can: **MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.** **MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.** **MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.** **MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.** **MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.** **MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.**	**Library:** *At the Root of It,* Robert Newell *Plants Grow?* (Dorling Kindersley), Lynn Bryan *Trees and Leaves* (Dorling Kindersley), Jane Manners *Where Do Plants Grow?* (Dorling Kindersley), Lynn Bryan *Coral Reefs* (Dorling Kindersley) Sydnie Meltzer *Fins, Wings, and Legs,* Rachel Griffiths and Margaret Clyne *Skeletons Inside & Out* (Dorling Kindersley) Claire Daniel *Survival: Animal Adaptations* (Dorling Kindersley) Alice Cary *The Buzz About Honeybees,* Emily Costello *The Wonder of Whales,* Thea Feldman *We Need Insects,* Anna Prokos **IR:** U1W2 *Saving Wolves and Crocodiles* (Level 3*)*

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MS-LS3 Heredity: Inheritance and Variation of Traits Students who demonstrate understanding can: **MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.**	Matching student-facing book titles fall outside of the curriculum.
MS-ESS2 Earth's Systems Students who demonstrate understanding can: **MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.** **MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.** **MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.**	**Library:** *Water Conservation,* Saddleback Educational Publishing *Water Wise* (Dorling Kindersley), Myka-Lynne Sokoloff *Clouds* (Dorling Kindersley) Jane Manners *Deadly Storms,* Ann Weil *Hurricanes* (Dorling Kindersley) Maureen Haselhurst *Wacky Weather,* Margery Niblock **IR:** U1W2 *Holding Back the Desert* (Level 2) U1W3 *Tornado!* (Level 1); *Tsunami!* (Level 2); *Earthquake!* (Level 3) **WSR:** *Volcanoes; Wind Energy*

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MS-ESS3 Earth and Human Activity Students who demonstrate understanding can: **MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*** **MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.**	**Library:** *Alternative Fuels,* Saddleback Educational Publishing *Changing Shores,* Pamela Jennett *Ecological Disasters,* Ann Weil *Global Warming Differentiated Text,* Saddleback Educational Publishing *Heroes of the Environment,* Harriet Rohmer Interface: Ban the Bottle! Sabrina Scott Interface: Human Impact! Interface: Jane of the Jungle, Kate Wong Interface: On Global Warming Interface: Why I Lived With My Garbage For a Year, Brennan Blazer *Recycling,* Saddleback Educational Publishing *Save Our Earth* (Dorling Kindersley) Sharon Stewart *Water Conservation,* Saddleback Educational Publishing *Water Wise* (Dorling Kindersley), Myka Lynne Sokoloff **RATA:** Unit 4 *Heroes of the Environment* **IR:** U1W1 *The Great Pacific Garbage Patch* (Level 1); *Are People Ruining Antarctica?* (Level 2) U1W2 *Saving the Colorado Delta River* (Level 1) U1W4 *The Nature Connection* (Level 1) U2W3 *A Passion for Trash* (Level 2) U3W1 *Kids Saving the Rain Forest* (Level 1)

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MS-PS3 Energy Students who demonstrate understanding can: **MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.*** **MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.** **MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.**	**Library:** *Dictionary of Forces, Matter, & Energy* (Dorling), Leslie Garrett *Mysterious Magnets,* Anastasia Suen *The Mystery of Magnets* (Dorling Kindersley), Deborah Kekewich **WSR:** *Wind Energy*

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MS-ETS1 Engineering Design Students who demonstrate understanding can: **MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.** **MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.** **MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.** **MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.**	**Library:** For related material see: *Great Math Ideas,* Catherine Ripley *Playground Science* (Dorling Kindersley), Elizabeth Paren *Albert Einstein,* Anne Schraff *Madam Curie,* Saddleback Educational Publishing *Inventing the Telephone* (Dorling Kindersley), Sue Graves *Thomas Edison,* Saddleback Educational Publishing **IR:** U1W5 *Jacques Cousteau: Ocean Pioneer* (Level 1) U2W4 *The Amazing World of Math* (Level 3) U5W4 *Robot Explorers* (Level 1)

California's Proposed Next Generation Science Standards	Savvas iLit California, ©2016 Grades 4-8
Grade Seven	
MS-LS1 From Molecules to Organisms: Structures and Processes Students who demonstrate understanding can: **MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.** **MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.**	**Library:** *At the Root of It,* Robert Newell *Plants Grow?* (Dorling Kindersley), Lynn Bryan *Trees and Leaves* (Dorling Kindersley), Jane Manners *Where Do Plants Grow?* (Dorling Kindersley), Lynn Bryan **WSR:** *Eating for Energy*
MS-LS2 Ecosystems: Interactions, Energy, and Dynamics Students who demonstrate understanding can: **MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.** **MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.** **MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.** **MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.** **MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.***	**Library:** *Coral Reefs* (Dorling Kindersley) Sydnie Meltzer *Island Life* (Dorling Kindersley), Joanne Sinclair *Journey to Undersea Gardens* (Dorling Kindersley) Margaret Clyne; Rachel Griffiths; and Cynthia Benjamin *Wetlands,* Anastasia Suen **IR:** U4W4 *Friend or Foe? The Truth About Germs (Level 3)* **WSR:** *Eating for Energy*

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MS-ESS2 Earth's Systems Students who demonstrate understanding can: **MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.** **MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.** **MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.**	**Library:** *A Guide to Rocks and Minerals* (Dorling Kindersley) , Jeffrey B. Fuerst *Blast Zone: The Eruption and Recovery of Mount St. Helens,* David Stienecker *Earthquakes,* Ann Weil *It's All in the Soil* (Dorling Kindersley), Barbara Gannett *Rock Records* (Dorling Kindersley), Jan M. Mike *Sand* (Dorling Kindersley) Margaret Clyne; Rachel Griffiths *Volcanoes,* Ann Weil *Fossil Find,* Rose Howell *Fossil Seekers* (Dorling Kindersley) Laura Buller **IR:** U4W3 *The World's Water Woes (Level 1)* **WSR:** *Heat and Energy*
MS-ESS3 Earth and Human Activity Students who demonstrate understanding can: **MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.** **MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects**	**Library:** *Blast Zone: The Eruption and Recovery of Mount St. Helens,* David Stienecker *Deadly Storms,* Ann Weil *Flood and Famine,* Sharon Fear *Hurricanes* (Dorling Kindersley) Maureen Haselhurst Interface: Hurricane Sandy Survivor Interface: Japanese Tsunami *Living Through a Natural Disaster* (Dorling Kindersley), Eve Recht *Water Conservation,* Saddleback Educational Publishing *Water Wise* (Dorling Kindersley), Myka-Lynne Sokoloff *Volcanoes,* Ann Weil **WSR:** *Heat and Energy*

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MS-PS1 Matter and Its Interactions Students who demonstrate understanding can: **MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.** **MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.** **MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.** **MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.** **MS-PS1-5. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.** **MS-PS1-6. Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.***	Matching student-facing book titles fall outside of the curriculum.

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MS-ETS1 Engineering Design Students who demonstrate understanding can: **MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.** **MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.** **MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.** **MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.**	**Library:** For related material see: *Great Math Ideas,* Catherine Ripley *Playground Science* (Dorling Kindersley), Elizabeth Paren *Albert Einstein,* Anne Schraff *Madam Curie,* Saddleback Educational Publishing *Inventing the Telephone* (Dorling Kindersley), Sue Graves *Thomas Edison,* Saddleback Educational Publishing **IR:** U1W4 *Inventions from Outer Space (Level 1)*

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Grade Eight	
MS-LS3 Heredity: Inheritance and Variation of Traits Students who demonstrate understanding can: **MS-LS3-1. Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.**	**IR:** U1W5: *DNA Profiling (Level 2)*

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MS-LS4 Biological Evolution: Unity and Diversity Students who demonstrate understanding can: **MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.** **MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.** **MS-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.** **MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.** **MS-LS4-5. Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.** **MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.**	**Library:** *Fossil Find,* Rose Howell *Fossil Seekers* (Dorling Kindersley) Laura Buller *Fins, Wings, and Legs,* Rachel Griffiths and Margaret Clyne *Is It an Insect?* (Dorling Kindersley), Catherine Ripley *It's a Mammal!* Sharon Stewart *Skeletons Inside & Out* (Dorling Kindersley) Claire Daniel **IR:** U1W5: *DNA Profiling (Level 2*

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MS-ESS1 Earth's Place in the Universe Students who demonstrate understanding can: **MS-ESS1-1. Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.** **MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.** **MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system.** **MS-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.**	**Library:** *Book of Space: Questions and Answers* (Dorling) Rosie McCormick *Could We Live on the Moon?* (Dorling Kindersley) Frieda Wishinsky Interface: We Choose to Go to the Moon, John F. Kennedy *Our Mysterious Universe* (Dorling Kindersley), Laura Langston *Star Pictures* (Dorling Kindersley), Leslie Kimmelman

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MS-ESS3 Earth and Human Activity Students who demonstrate understanding can: **MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.**	**Library:** Alternative Fuels Differentiated Text, Saddleback Educational Publishing *Changing Shores,* Pamela Jennett *Ecological Disasters,* Ann Weil *Global Warming Differentiated Text,* Saddleback Educational Publishing *Heroes of the Environment,* Harriet Rohmer Interface: Ban the Bottle! Sabrina Scott Interface: Human Impact! Interface: Jane of the Jungle, Kate Wong Interface: On Global Warming Interface: Why I Lived With My Garbage For a Year, Brennan Blazer *Recycling,* Saddleback Educational Publishing *Save Our Earth* (Dorling Kindersley) Sharon Stewart *Water Conservation,* Saddleback Educational Publishing *Water Wise* (Dorling Kindersley), Mykå-Lynne Sokoloff *Wetlands,* Anastasia Suen

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MS-PS2 Motion and Stability: Forces and Interactions Students who demonstrate understanding can: **MS-PS2-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.*** **MS-PS2-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.** **MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.** **MS-PS2-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.** **MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.**	**Library:** *Dictionary of Forces, Matter, & Energy* (Dorling), Leslie Garrett
MS-PS3 Energy Students who demonstrate understanding can: **MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.** **MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.**	**Library:** *Dictionary of Forces, Matter, & Energy* (Dorling), Leslie Garrett

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MS-PS4 Waves and Their Applications in Technologies for Information Transfer Students who demonstrate understanding can: **MS-PS4-1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.** **MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.** **MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.**	Matching student-facing book titles fall outside of the curriculum.

California's Proposed Next Generation Science Standards	Savvas iLit California, ©2016 Grades 4-8
MS-ETS1 Engineering Design Students who demonstrate understanding can: **MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.** **MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.** **MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.** **MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.**	**Library:** For related material see: *Great Math Ideas,* Catherine Ripley *Playground Science* (Dorling Kindersley), Elizabeth Paren *Albert Einstein,* Anne Schraff *Madam Curie,* Saddleback Educational Publishing *Inventing the Telephone* (Dorling Kindersley), Sue Graves *Thomas Edison,* Saddleback Educational Publishing **IR:** U1W5: *Teen Tech Inventors (Level 1)* **WSR:** Computers